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PHILIPPINE AGRICULTURE: SUMMARY AND TRENDS

Alden Cutshall
University of Chicago

Agriculture dominates Philippine economy. It furnishes employment to about 3 million persons or about 60 per cent of the gainfully employed workers. Agricultural operations provide 40 to 45 per cent of the total national income and about 75 to 80 per cent of the country's exports. Food crops account for about two thirds of the total production (tonnage) and about three fourths of the cultivated acreage.

Main crops for local consumption are rice (45% of the cultivated area), corn and sweet potatoes. In keeping with the national emphasis on increased food production, there has been a consistent, but not a rapid increase in acreage devoted to these and other food crops. Percentagewise, the increase in fruit and vegetable production has been quite significant. Double cropping of rice, corn and some vegetables is practiced in many areas, but is not a widespread policy.

Land holdings vary in size depending upon location, tenure, and land utilization but most of them are small, about one half of the farms have an area of less than 2 hectares. Large operations are most often traditional family estates, in a few cases they are holdings of corporations. These large holdings are commonly devoted to commercial agriculture, particularly coconut and sugar production. Pineapples, rubber, abaca, ramie, tobacco, citrus fruit, rice and corn are all produced on one or more large haciendas, however. The small farms are most numerous on the densely populated Central Plain of Luzon, crowded Cebu, and in areas of hill-land agriculture on Eastern Negros, Panay and elsewhere.

Fertilization, conservation and other scientific farming techniques are practiced only on the larger haciendas and not on all of them. Fertilization is a widespread practice in the sugar areas, but the small planter uses less fertilizer per hectare and may apply it less efficiently than does the large scale farmer. Marketing facilities are poor, but significant improvement is noted.

Farm tenancy is high in some areas, particularly on the better sugar and rice lands, that is, on the more level and more fertile areas. It is highest in Occidental Negros, the principal sugar province, and the province on the Central Plain of Luzon, a rice and sugar area. There is also a high percentage of tenancy among the corn and tobacco farmers in some areas.

Foreign investment is relatively small in agricultural operations. The major pineapple operation, some abaca production, a part of the rubber production, and a few coconut plantations are owned by American citizens or leased by U. S. corporations. Some Spanish capital is invested in both sugar and tobacco production and Swiss interests operate two plantations

that produce rubber, coconuts, coffee, cacao, and abaca.

In general, agricultural production has been steadily upward since the war, but there are a few exceptions. The tonnage of copra was particularly high in late 1940's and early 1950's, probably a reflection of the shortage of vegetable oils on the world market and the absence of any concentrated harvest in the immediately preceding years. Since 1951 copra production has been somewhat less, but still leads the list of Philippine exports. There is some question whether coconut production will maintain its present position, partly because of the increase of disease (cadang cadang) in the Bicol region and because of the current emphasis on fruits, vegetables and coffee in the provinces of Laguna, Batangas and Cavite. (Both areas have been major coconut areas.) Only in Mindanao is there a significant increase of new plantings to offset this possible decrease of production on Luzon.

The production of neither sugar nor abaca is as large as a few years ago. This may be attributed in part, but not primarily, to the national policy of greater self-sufficiency on foods. Most sugar men attribute the slight decline in sugar production to the Laurel-Langley Agreement and the potential loss of the captured U. S. market, but there are other possible factors, the current high support price of Virginia tobacco, for example. Abaca production has declined more as a result of the ravages of abaca mosaic in some producing areas and from competition of other fibers than from Central-American competition. Many of the abaca plantations near Davao have been plowed and planted to coconuts because of the presence of the mosaic.

The most rapid change in recent years is in tobacco production. This historic industry failed to regain its prewar position, even after the introduction of Virginia leaf (1950) for the expanded domestic cigarette industry, until the passage of the government price support program in 1954. Price supports are unrealistically high and even inferior grades of Virginia leaf were included in the support program. Hence, there was an abnormally rapid expansion of the industry, with the emphasis on quantity, rather than quality tobacco. Some government warehouses are filled with low quality tobacco, unsuited for cigarette manufacture and purchased at a price well above the world market for comparable grades of tobacco. Most of the expanded tobacco production has been in the Ilocos provinces, particularly La Union and Ilocos Sur. Price supports for the lower grades of Virginia leaf tobacco were removed in August 1957 so it is probable that the industry may become more stabilized in the immediate future. (see table)

Other trends (not yet revealed in statistics) are related to the increased use of pump irrigation and the probable expansion of rubber production. The Irrigation Pump Service of the Bureau of Public Works, with the help of International Cooperation Administration funds, has supervised the formation of 211 cooperative pump irrigation projects and the installation of pumps, most of them in connection with rice production. More than 33,000 hectares were irrigated in 1957, at least in part by pumps installed in this manner. In some cases the cooperative project supplies water to

supplement the gravity irrigation of the area, thereby increasing the hectare yield and decreasing the possibility of serious loss by drought. In other cases it may provide water for a second crop in an area where a second crop of rice would not otherwise be possible.

Rubber production will increase. There is now a significant, but not large, production of rubber goods in the Manila area. The newer plants, subsidiaries of U. S. firms, are committed to attain self-sufficiency in crude rubber. One of them has purchased a portion of a large plantation on Basilan as a nucleus of field operations Others are doing exploratory work, on Mindanao and elsewhere, that should lead to significant new planting in the areas selected. It will probably be about a decade before this development will be portrayed in production figures.

Foremost among the changes in the general pattern is the increased area brought into cultivation. This is largely on Mindanao and secondly in other sparsely settled areas, as on Mindoro and Palawan, but is not restricted to frontier areas. For example, hundreds of hectares on the slopes of Tagaytay Ridge, about 25-35 miles from Manila, were not in cultivation agriculture in prewar years, but are now planted to rice, corn, peanuts, vegetables and fruit. The increase in tobacco acreage in the Ilocos area represents, in part, a shift from rice, corn or other food crops, or in one or two local areas, Ilocos Sur, for example, a decrease in sugar acreage. There is an increase in intercropping (two-story agriculture) in Batangas and Cavite. Rice, corn, or casava among coconuts, or pineapples in young papaya orchards are illustrative. Coffee plantings have been increased in several areas, Batangas and Negros as well as some Mindanao areas. There is the shift from abaca to coconuts in the area south of Davao City and the shift of abaca plantings to areas currently free of the mosaic (areas around the northern end of Davao Gulf, in southern Bukidnon, and northeastern Cotabato). Davao is still the principal export center for abaca, but much of the fiber is being produced farther from the port. This reflects the general increase of agriculture in the more interior areas of Mindanao as more roads are built and non-coastal areas become more accessible to local markets or export centers. In Mindanao, the settlers, some of them squatters, are truly following right behind or along with road construction crews.

Philippine Production of Virginia Leaf Tobacco

Year	Production (in thousand kilos)
1950	100
1951	400
1952	1,407
1953	1,519
1954	2,051
1955	6,830
1956	21,906
1957 (est.)	27,500

"OFF-BEAT" GEOGRAPHIC REFERENCES

Albert G. Ballert
Great Lakes Commission

A group of publications containing an unexpected amount of material of interest and value to many geographers appears to lie outside the general reading sphere of most members of the profession. These publications, referred to as "off-beat" for geographers, hold a position of high regard in the business world. For the geographer, whose particular interest is current economic activities and developments, the use of these references should prove very rewarding.

The monthly bulletins of the various Federal Reserve banks, several of the national business newspapers, and periodic business reviews issued by banks and universities offer a continuing wealth of information for the teacher and researcher in a number of geographic specializations. Also, these media of the business and financial world provide a source of specific information on many matters of current concern.

From the twelve District banks in the Federal Reserve System comes an outstanding series of economic reports. Each of these banks issues a Monthly Review. These present analyses of economic activities and areas by the research staffs of the individual banks. Together, the 12 districts cover the nation, but differences in the economics of various sections of the country, as well as in interests of the various banks, result in a diversity of subject matter in the monthly bulletins. All, however, are models with respect to the use of charts and graphs. The maps also are of high quality.

The geographer specializing in the United States or one of its sections is certain to benefit from the Federal Reserve publications. The variety of subjects investigated by the bank research staffs also makes this reference useful to those with special interests in industrial or agricultural geography and in regional planning.

The general scope of studies undertaken by the Reserve banks is suggested by the titles of some articles which have appeared in recent issues.

Title	Bank	Date
The Port of Boston	Boston	7/1957
Renaissance in Steel	Philadelphia	9/1957
The Aluminum Picture Changes	Richmond	4/1958
Meat Packing: An Industrial Challenge	Atlanta	10/1957
Geography of Steel Consumption	Cleveland	4/1958
Midwest has Big Stake in Foreign Trade	Chicago	4/1958
Metropolis in Transition	St. Louis	3/1958
Iron Ore Beneficiation	Minneapolis	10/1957
Cattle Feeding -- A Dynamic Industry	Kansas City	3/1958
The Continental Shelf - A Petroleum Frontier	Dallas	5/1958
The Aluminum Industry	San Francisco	3 issues

In addition to these 11 banks, there is one in New York City. This bank's monthly publication is void of articles having a geographic interest; the money market seems to be the prime subject of concern.

Most of the banks include in their Review a summary of economic conditions within their Federal Reserve district. Various key indexes also are used to indicate the economic activity in selected localities. In addition to the monthly publication, some of the banks prepare special studies. In March 1958, for example, the Minneapolis bank issued "The Missouri Basin Development Program." The Dallas bank recently prepared "An Economic Fact Book" on the states within its district. The Boston bank participates in many studies relating to New England.

Federal Reserve publications referred to are available without charge. Their addition to departmental libraries and personal files is recommended, for they are the only publications known to the writer which collectively touch all sections of the nation and its economy.

Three business newspapers have proven to be exceptionally useful to the writer in keeping current on a variety of economic and geographic subjects. The publications are the Wall Street Journal, Journal of Commerce, and Financial Post. The first two have five issues a week, and the last is published weekly in Toronto. Each of these papers carries financial news, but each goes far beyond this feature and provides excellent reports which will benefit the economic geographer and others whose teaching and studies touch on various aspects of current affairs.

The Wall Street Journal is probably the most complete newspaper for keeping abreast of important economic developments throughout the world. Along with the news articles there are longer reports. These range in subject from urban growth problems to the resource and trade problems of various nations. Commonly the articles are written by staff reporters at the scene of the activity and provide considerable detail.

The Journal of Commerce is a somewhat more specialized paper, but it is exceptionally valuable in the array of topics covered. It will be perhaps of most interest and use to the geographer concerned with transportation, particularly water transport and ports, and with agricultural and mineral resources. The second section of the newspaper is devoted to shipping and world trade. Several times each week there is a full page of articles on a single country.

To the geographers who conduct research on and teach about Canada, the Financial Post which offers special rates to teachers, will prove very useful. A special section accompanies most weekly issues and provides surveys of individual provinces, industries, and resources. Along with a good coverage of Canada's economic life, the newspaper presents views on American economic and political matters which are, to say the least, quite candid.

There are also many financial institutions which issue periodic bulletins dealing with a diversity of subjects relating to their areas of interest. Sometimes these are indeed broad. For example, the Monthly Review of The Bank of Nova Scotia has dealt recently with the mineral resources of Latin America and of Africa and with aerial photography and

electric power in Canada. These are available from the Economic Department of the bank, 44 King St. W, Toronto, Ont.

The periodicals of the schools of business in many state universities should not be overlooked. Their value to the geographer is two-fold; they introduce him to the research and findings of an allied field, and offer an excellent outlet for appropriate geographic studies.

These "off-beat" publications can provide a real service to geographic research and teaching. If one of the jobs of the geographer "is to bring the study of man, quite literally, down to earth," as G. H. T. Kimble suggested (Geog. Rev., Vol. 42 (Jan. 1952), p. 1), perhaps there is no more effective way than to keep in touch with the current economic happenings that will guide his future actions. The newspapers mentioned serve this goal particularly well because they report on the changing potential of national units, which in turn open new frontiers in our geographic thinking.

GEOGRAPHY IN AUSTRALIA

Henry L. Hunker
Ohio State University

This article is written to familiarize the American geographer with the organization and interests of Australian geography departments and to review the Fulbright Program in geography as it pertains to Australia.

From March to December 1957, I served as a Fulbright Lecturer in Geography at the University of Queensland in Brisbane. Mine was one of approximately 250 Fulbright awards to Australia since the Program's inception in 1951; geographers have received nine of these awards. Only two geographers have gone to Australia as lecturers and both to the University of Queensland; one has gone as a research scholar to the University of Sydney; and the remaining six as graduate students (three to Sydney, two to Adelaide, and one to the Australian National University). In turn, only three Australian geographers have been granted Fulbright awards to the United States; all have been graduate students seeking higher degrees at American institutions.

Disadvantages. There are a number of reasons why so few American geographers have participated in the Fulbright Program in Australia. Certainly one factor is the general lack of interest in Australia and the southwest Pacific as areas of regional specialization. The American is not as interested in that area as the Australian is in the North American continent. Secondly, there is a general lack of knowledge concerning Australian affairs and, specifically, the educational process. We have a limited understanding of the organization of the universities, their programs, and the opportunities for work within existing geography departments. A third factor which discourages many young geographers with families from applying for a Fulbright grant is the fact that the terms of an award are not sufficient to cover the expenses involved. And finally,

there are presently many grants which are much more rewarding financially and, in some cases, professionally. These have supplanted the Fulbright in some respects, if not in the prestige attached to the Fulbright Program.

The Australian geographer contemplating a Fulbright grant to undertake research or lecturing in the United States can expect compensation only for travel expenses to and from the United States. He must make arrangements for employment and income in the United States before applying for a grant. He must have proof of employment upon his arrival in this country. American geography departments should be willing to cooperate to this end. Of course, the Australian finds that there are more rewarding grants to be obtained, e.g., Carnegie and Rockefeller, so that other programs have taken preference over the Fulbright Program.

Advantages. There are many advantages inherent in the Fulbright award. The award provides an adequate income during the course of a nine month's stay in Australia and limited additional funds for travel. There is the advantage of living in an English-speaking nation yet one in which the people, neighborhoods, and customs differ from those of the United States.

Australia offers an amazing diversity of problems which should interest the physical geographer. There is ample opportunity for the scholar to pursue research in climate, soils, hydrology, biogeography, geomorphology, and related topics, especially with respect to arid and semi-arid regions. The economic geographer will find that the Australian is interested in his work, as well, with special concern for population and settlement problems, urban and industrial development and potential, and social geography. It was my privilege to introduce the first course in Industrial Geography offered in Australia; the response was gratifying not only from students but also from the business and industrial community.

Since the principal reason for going to a foreign nation is to know the region, the geographer will find ample time and means enabling him to travel widely. Contacts with areas that are truly pioneer are rewarding and not uncommon. The American is made welcome in Australian communities and his opinions and attitudes noted, especially as they are related to Australian-American affairs. The economic geographer will find the businessman and industrialist interested in learning about his field. Thus, the advantages outweigh the disadvantages. Australia offers the excitement of a new and pioneer land, the experiences of a foreign nation in its customs and traditions, the eagerness of audiences to learn about a new subject or to hear about the American way of life, the opportunity to travel widely, and unsolved problems which should tax the most ardent scholar.

Universities. A brief questionnaire was sent to each Australian geography department inquiring into the organization of courses, degrees granted, basic fields of instruction, and the extent of participation in the Fulbright Program. In addition, six of the universities were visited and, where possible, personal contacts made with the geographers there. It is hoped that this review may help to establish the basis for more rewarding

contacts between American geographers and their Australian counterparts in the further development of the Fulbright and other programs.

Eleven universities serve Australia's educational needs and eight have geography departments. Four universities have been organized in the postwar years. The universities are listed below with their location, date of establishment, and approximate 1957 student enrollment.

University	Location	Date	Enrollment**
*Univ. of Sydney	Sydney, N.S.W.	1850	8,318
Univ. of Melbourne	Melbourne, Vic.	1853	7,908
*Univ. of Adelaide	Adelaide, S.A.	1874	4,317
*Univ. of Tasmania	Hobart, Tas.	1890	1,004
*Univ. of Queensland	Brisbane, Qld.	1909	5,709
*Univ. of West. Aust.	Perth, W.A.	1911	2,356
Canberra University College	Canberra, A.C.T.	1929	396
*Australian National Uni.	Canberra, A.C.T.	1946	67
New South Wales Univ. of Technology	Sydney, N.S.W.	1949	
*Newcastle Univ. College	Newcastle, N.S.W.	1951	5,041
*Univ. of New England	Armidale, N.S.W.	1954	1,149

The University of Sydney has the oldest geography department and, until recently, the only one to give advanced degrees. University of Sydney degrees are given also at Newcastle and New England universities. Each state, but not the Northern Territory, has a university. The Australian National University is primarily a graduate center of study and research. Three schools, Canberra, Melbourne, and New South Wales University of Technology, grant no degrees in geography; Tasmania grants no graduate degrees; all other departments grant at least an M.A. or M.Sc. with Sydney and National University granting the Ph.D. Adelaide and New England are preparing to grant the advanced degree.

The range of courses offered is great. Emphasis is placed upon the systematic approach so that the variety of regional courses is somewhat limited. Virtually every department teaches a course on Australasia but, beyond this, regional courses are not the rule. Economic geography is taught in every department with work in population and settlement geography strong. Urban geography, regional planning, and industrial geography courses are being introduced. In physical geography, a greater

* Geography departments exist in these universities.

** Enrollment figures are based upon "total" enrollments which include full course students, part-time students, and external students. The external studies program is strong at certain universities. For instance, nearly one half of the students at the University of Queensland and at the University of New England are external. Figures obtained from "Report of the Committee of Australian Universities," Canberra, A.C.T., September 1957.

diversity of courses is offered: climatology, biogeography, soils, geomorphology (often at the graduate level only), cartography, field courses, and hydrology. The Australian geographer usually is better versed in the history of geographic thought and methodology than his American counterpart. Graduate work is encouraged in the fields of settlement geography, geomorphology, climatology, economic geography, and regional field studies.

Geography and the Fulbright Program. Every institution contacted displayed considerable interest in the possibility of obtaining either a Fulbright lecturer or research scholar. Those schools with previous Fulbright experience have, in every instance, a favorable attitude towards the contributions made. Other than university lecturing, the Fulbright awardee has contributed through slide-illustrated lectures, radio addresses, and papers in lay and professional journals. The contributions were mutually appreciated. The American learned much and profited by his professional and social experiences. The Australian universities have been enhanced by the foreign faculty member or student.

Four Australian departments have solicited Fulbright aid in geography and all hope to do so in the future. Each would welcome inquiries from interested faculty members or graduate students of American institutions. Suggested topics for research or lecturing range from regional studies of Australasia to arid zone geomorphology. Certain departments, such as Western Australia, recognize their position in pioneer areas and encourage work involving some aspect of the Australian "frontier." Tasmania provides a base for the study of glacial geology and coastal geomorphology recognizing, in turn, its more limited appeal to the economic or human geographer. Every department stresses the opportunities available for field work and, in many instances, supplemental aid, either in the form of cash or equipment, might be forthcoming. On the other hand, the limitations of library research should be noted -- Australia is not the place for the "armchair geographer" at this time.

Following is a list of the schools, geographers in charge, and areas of suggested study.

University	Contact	Possible Topics
Adelaide	Graham H. Lawton Reader	Prefer a lecturer or research scholar with Australia or Southwest Pacific area specialty.
National Univ.	O. H. K. Spate Professor	Research scholar or graduate student with definite program in settlement geography, geomorphology, or Pacific Islands study.
Newcastle	Alan Tweedie Lecturer	Research scholar or graduate student in industrial geography or local regional studies; lecturer in the Americas, hydrology, climatology, land-use planning, industrial geography.

University	Contact	Possible Topics
New England	E. W. Thorpe Lecturer	Regional interest in Australasia or the Americas; systematic interest in cartography, geomorphology, or agricultural and economic geography.
Queensland	Richard Greenwood Lecturer	Graduate student, research scholar, or lecturer in physical geography.
Tasmania	Peter Scott Professor	Research in glacial geology or coastal geomorphology.
West. Aust.	J. Gentilli Lecturer	Research in semi-arid and arid regions; the Australian frontier.
Sydney	M. Holmes Professor	No response.

Australia provides a challenging area for research in regional and systematic geography. Response from the universities indicates that American participation in their programs would be most welcome. This enthusiasm for increased contacts between American and Australian geographers should be encouraged. Greater participation in the Fulbright Program is a positive move in that direction. Certainly the persons noted in the above table, or the writer, would be pleased to help any interested geographer take the initial steps toward work in Australia.

The cooperation of Mr. Geoffrey Rossiter, United States Educational Foundation, Canberra, A.C.T., in supplying information relating to the Fulbright Program is gratefully acknowledged.

CARTOGRAPHY SECTION

Materials for this section were supplied through the cooperation of Fred W. Foster and the Cartography Committee.

Conformality: Mathematical and Visual

J. Ross Mackay
University of British Columbia

Conformal projections have, by definition, good shapes for relatively small areas. This means that angle and scale properties are such that a small or elementary figure drawn upon a globe will retain its original form upon a conformal projection. It is evident, however, that when two conformal map grids are placed side by side and identical "small" areas are visually compared, their shapes may look dissimilar, despite the mathematical conformality of the projections. The degree of dissimilarity depends, of course, partly on the size of the "small" areas that are compared.

In the following discussion, let us assume that a relatively small area on a world map is one that roughly equals that of British Columbia or Texas.

For some mapping purposes, it may be just as desirable to have a map projection which has excellent visual conformality (i.e., relatively small map areas visually resemble corresponding globe areas) as strict mathematical conformality. To this end, a study has been started, with financial assistance from the Canadian Social Science Research Council, to determine if it is possible to derive an expression by means of which the visual conformality of specified portions of map projections may be assessed. No attempt has yet been made to analyze the complex problems of visual perception; this aspect will be studied in cooperation with a psychologist.

The preliminary investigations have involved attempts to express visual conformality by means of models and to solve for them using empirical data. Several simple types of models have been tested, for example:

$$V_C = A^{x_1} B^{x_2} C^{x_3} D^{x_4}$$

where V_C is visual conformality, ranging from 0 to 1; A,B,C, and D are weighting factors of 1 or less; x_1 is the absolute percentage variation in angle $\emptyset$ (Figure 1) from 90°; and x_2, x_3, and x_4 are absolute percentage scale variations of b, c, and d, from their true values, assuming that a is of true value.

Empirical data were obtained from tests given to college undergraduate students. Six map projections were selected so that there were reasonably systematic variations in the angles of intersection and spacing of the meridian-parallel networks in the Greenland area. The six map projections were each reproduced for the Greenland area in three sets: set I showed graticules only for each of the six projections; set II showed graticules together with the outline of Greenland; and set III showed Greenland without any graticules. The projections in each set were rated by students as to their visual conformality in comparison with a globe. The results proved quite interesting. For instance, the grid system (set I) of Mercator's projection rated much lower than the outline of Greenland in Mercator's projection (set III). By assigning weights to the ratings (e.g., 0.7 to first place), A, B, C, and D were solved for. As an illustration, one result for set I gave:

$$V_C = .90^{x_1} \quad .50^{x_2} \quad .25^{x_3} \quad .95^{x_4}$$

Although the above model takes into consideration only four variables and it can certainly be greatly improved, it does, nevertheless, measure reasonably well the visual conformality of many projections. In general, if the formula is applied to identical parts of two projections as illustrated in Figure 1, the projection with the higher V_C value will look more like the corresponding part of the globe than that with the lower V_C value.

Further studies, now in progress, involve more variables and tests with more map projections. It is hoped that if a satisfactory model can be derived, it may be used to assess the relative effects introduced by changing scales, angles, and curvature in the meridian-parallel system of a projection. Such information should be of assistance in the design and choice of map projections where visual conformality is a desirable property.

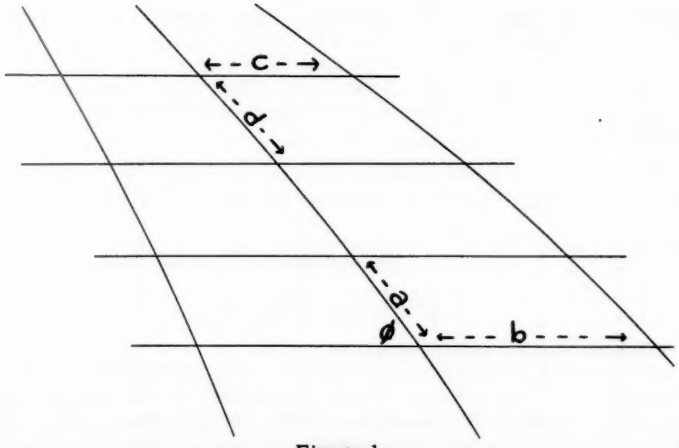

Figure 1

Isolines in Population Density Mapping

Marvin C. Creamer
Glassboro State College, N. J.

In constructing a population density map it is desirable to choose isopleths or other delimiting lines that will separate the sharp breaks of population density. A frequency table is of limited usefulness in the selection of isolines because it does not take into account areal grouping of the densities. In the following suggested technique, values obtained from tentatively placed delimiting lines are shown on a graph so that a selection of permanent isolines can be made in terms of areal grouping.

Figure 1 is considered as a portion of the base map with population densities plotted in. Dotted lines "A," "B," and "C" have been drawn as tentative isolines marking breaks in population density. It will be noted that each of these tentative lines can be assigned a range of values without affecting delineating power. Thus line "A" would outline the same area if its value were established anywhere between 75 and 450. Similarly, line "B" could vary between 350 and 600, and line "C" between 400 and 900.

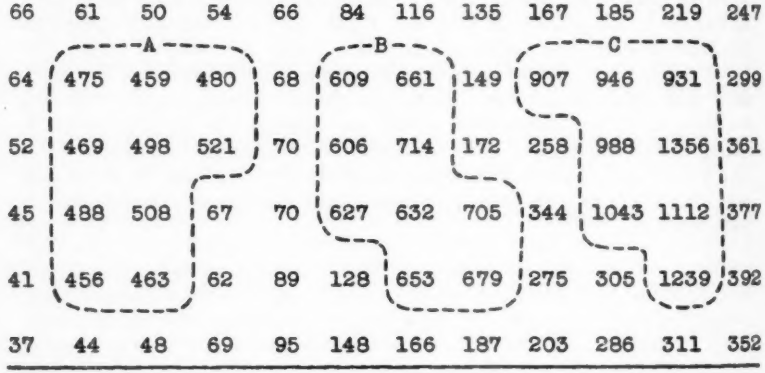

Figure 1

These ranges of possible values for lines "A," "B," and "C" are plotted graphically in figure 2. It can be observed that any isoline whose value

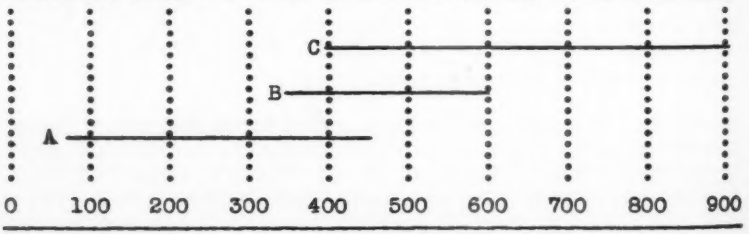

Figure 2

lies between 400 and 450 will satisfactorily delimit all three of the areas tentatively outlined by lines "A," "B," and "C" in figure 1. Thus a line with a value between 400 and 450 has significance in terms of areal grouping on the map.

In practice the tentative lines may enclose areas varying considerably in size. If desired, weighting can be accomplished by increasing the number of graph lines for the larger areas in proportion to area or length of tentative delimiting line.

On a map of any size there will be many graph lines with which to deal. The number of these is totaled at each step along the graph. A large number of lines occurring at a particular value indicates a value of significance for the map. In the selection of values for isolines, care needs to be taken so that the graph lines which figure in the selection of one isoline do not figure in the selection of others.

Three Postwar German Historical Atlases: A Review

Laurence Grambow Wolf
University of Cincinnati

The historical atlas is a veritable gold mine for the student of political geography who wishes to unfold the dynamic story of a region's political boundaries as they march across the landscape, epoch by epoch. No other means of communication can portray so graphically the appearance, expansion, disappearance, and in some instances, relocation and metamorphosis of tribal areas, kingdoms, duchies, empires and nations.

Postwar Germany has contributed three historical atlases to our library resources: Historischer Schulatlas: Urgeschichte Altertum, Mittelalter, Neuzeit. F. W. Putzger. Velhagen und Klasing, Bielefeld, Deutsche Bundesrepublik. 1957; Neuer Geschichts- und Kultur- Atlas, von der Urzeit zur Gegenwart. Dr. Hans Zeissig. Atlantik Verlag Paul List, Frankfurt, Deutsche Bundesrepublik. 1954; Atlas zur Weltgeschichte. Karl Leonhardt. Lehrmittel-Verlag, Offenburg, Baden, Deutsche Bundesrepublik. 1951. We would do well to welcome the healthy restoration of German activity that has occurred in this field as in so many others since the downfall of the tragic and mordant Third Reich.

Putzger's Schulatlas, celebrating its 80th Anniversary, is the oldest, largest, and most ambitious of these. It has been considerably reworked during the past decade. The new Putzger has almost the same balance between Modern, Medieval and earlier historical periods as the editions of the 1920s. However, some maps of military detail have been replaced by a new section of twelve pages on pre-history.

In general, the atlas has maintained the same approximate size by eliminating some of the details of territorial changes in the Balkans, sites of famous battles, and by rearranging some of the material. New maps have been added illustrating the occupation zones, international economic unions, world economy, and the UN. There is a slightly greater propor-

tional emphasis on Mitteleuropa and considerably greater on the world. However, for those primarily interested in territorial and boundary history, the addition of the two-page map of traffic routes (autobahnen and railroads in 1939 Reich boundaries) is not nearly as desirable as one which would illustrate the complex territorial changes during Hitler's expansionist rule. These are shown but poorly on a two-page map devoted to Europe during the Second World War. Since this period is so often shown incompletely or incorrectly in publications devoted to foreign affairs and history, the editors missed an opportunity here to be of real service.

The modern Putzger is a great improvement over that of 30 years ago, in that the colors are now brighter and more intense, and the hachures have usually been omitted. The location of political units is now much more quickly grasped. In some instances the hachuring has been replaced by shading. As the shading is rather crudely rendered, the change is scarcely an improvement. Perhaps the success of Wenschow has led us to expect too much.

The Volkerkarte differs from the earlier versions in that the Mazurs and Mitteldeutschen in East Prussia seem to both have become 'Niedersachsen', Posen and the Corridor are more solidly German, the Slovenes have been removed entirely from Austrian Carinthia, and the Lithuanians have all but entirely retreated from Memelland and the southern portion of the delta of the Nieman. These changes are the opposite of rectifications.

The mixture of type-faces due to the interlarding of new and redrawn maps with those which retain the original lettering is not displeasing. Each historical section now begins with an attractive title page.

The closest rival to Putzger is Dr. Hans Zeissig's Neue Geschichts- und Kultur-Atlas which covers almost the same expanse of history in an atlas of the same dimensions and some sixteen fewer pages. Unlike Putzger, it does not make use of the fold-out page, which allows many of the maps in Putzger to be double size without any interruptions for binding. Many of the pages of the Neue Geschichts- und Kultur-Atlas seem more legible than Putzger's, due to the simple sans-serif lettering. Some maps lack minor details found in the Putzger atlas, and boundaries are often somewhat more generalized. A few careless slips have occurred in the rendering of the boundaries on the world maps.

Zeissig, on the other hand, gives more attention to the territorial evolution of France, Switzerland, and the Balkans. While the prehistorical and classical periods are not treated as fully as in the Putzger, this atlas presents a more dynamic depiction of historical changes through the liberal use of annotated arrows on maps of migrations and military actions.

Oberstudiendirektor Karl Leonhardt in his Atlas zur Weltgeschichte attempts much the same span of history in thirty two pages. Although this atlas is less detailed than either of the other two, it compensates for this in part by the use of insets and larger pages. It is still more detailed than atlases published in English of comparable size and price.

A unique advantage claimed for the Leonhardt atlas is the consistent use of color. "Von grosster Bedeutung fur einen historischen Atlas ist die Farbe. ... Darum ist grundsatzlich fur die gleichen Volker oder

Staaten die gleiche Farbe sowohl in der Geschichte des Altertums wie des Mittelal ters und der Neuzeit beibehalten worden." (Emphasis in the original.) This greatly simplifies the legends. The Putzger and Zeissig atlases have also been rather consistent in the assignment of color to peoples, states and dynasties. Leonhardt has merely carried this through more consistently than have his competitors.

This atlas has only four maps of European overseas expansion, no city plans, or maps of military campaigns or economic matters. The title is overly ambitious, unless one interprets 'Welt' to mean 'Western World,' for certainly one will look in vain for any development of the Oriental civilizations. Indeed, non-Europeans are included only insofar as they invade Europe. This holds true to some extent for all three atlases, but then Putzger's and Zeissig's do not claim to be "world" historical. The Nazi and post-Nazi periods have not been treated in the Leonhardt atlas. Both other atlases indicate the pre-Nazi German-Polish boundary on the appropriate maps of contemporary Europe -- an indication that the ghosts of Potsdam are still quite lively.

These atlases are being judged somewhat out of context, as one must mention in all fairness to the authors and publishers. They were not designed primarily for courses in political geography. Nevertheless, they contain a wealth of detail that can give instructor and student a much-needed perspective on the evolution of contemporary boundaries and boundary problems in Europe. The emphasis in these atlases on 'Mitteleuropa' while regretable in some respects, is not a serious handicap, for he who understands the political geography of 'Mitteleuropa' has gone a long way toward understanding that of all Europe, and he who understands the political geography of all of Europe, has gone a long way toward understanding the political geography of the world.

The language barrier can be overcome, if students have not had German or taken it seriously, by preparing a simple glossary of the names of the more important political units and the few technical terms used to indicate territorial acquisition or loss. All in all, these atlases are a sound investment.

Some Aspects of Map Reproduction

Robert E. Daehn
A. J. Nystrom & Company

No matter how fine an original map may be, it is of little value to others unless it can be reproduced easily and inexpensively, so that it can be read and studied by more than the few who come in contact with the original. One of the tragedies that confronts commercial map publishers is the case of the beautiful map or piece of art work developed with little or no thought given to reproduction although wide distribution is merited.

Map printing and the necessary art work involved is a highly specialized field, and many techniques common to the graphic arts field are not

applicable to map reproduction. Since World War II and especially since the advent of the vinyl plastics in the early 1950's, cartographic techniques have undergone a revolution. Transparent vinyl plastic sheets, with a coefficient of expansion comparable to that of plate glass, have enabled the drafting of full scale maps as large as 76 x 52 inches on a single sheet, utilizing a single negative with astounding register of as many as twelve colors in the final printing process from 12 plates. The Watercote method of proofing on opaque white vinyl directly from film negatives has eliminated the need of costly press proofing.

Along with the developments in techniques, offset printing has kept pace by enabling the printing of a larger sheet with greater quality than was ever dreamed possible before World War II. Giant four-color offset presses can now turn out 5,000 copies of a twelve-color map in about twenty-one press hours.

A major item to be kept in mind before making an original map is the limitations of the press on which it is to be printed. Naturally, the map should be made as large as possible in order to get maximum scale. In order to do this, the sheet size of the press should be determined before the job is laid out. A check with the printer before the job is at the drafting stage will eliminate many problems later on. Square sheets should be avoided, if possible, since register will be better on a rectangular sheet.

Proper consideration should also be given to whether the map will be printed from deep etch plates or surface plates. Deep etch plates have longer press life but are more expensive. They are made from positives. Surface plates have shorter press life but usually they are sufficient for several editions of maps and are less expensive. They are made from negatives. The Watercote method of proofing also utilizes negatives and for this reason, plus the need to do much double printing from window negatives, most government agencies and commercial houses print from surface plates. A discussion with the process house or plate maker before the job is in production will eliminate many problems.

The key is planning. A few hours of thoughtful planning before the job is undertaken will save time and money later on. Printing costs today are at an all-time high and economies must be effected wherever possible.

Another sad case with which commercial houses come in contact is the student of cartography who applies for a position and has spent much time in practicing hand lettering. Hand lettering is not used by commercial houses. It would seem that better use of his time could be made by gaining a better understanding of the graphic arts phase of mapping. Most type is printed on cellophane, wax-backed Transadhesives and stuck up directly on the type positive vinyl overlay. The mark of a good cartographer is to know how to reproduce a map as well as to draft one.

Some Comments on the Multiple Use Concept in Cartography

Arnold J. Kreisman
Aero Service Corporation

One year ago, in this publication, John Sherman and Waldo Tobler of the University of Washington suggested the multiple use concept in cartography. They urged, in essence, that individuals, agencies, and institutions engaged in mapping prepare their maps in highly separable form, these separations to be reunited in printing to produce a variety of maps for specific uses.

Multiple use extension of any endeavor has obvious merit; this is certainly true in the realm of cartography and mapping. At the same time there are some practical disadvantages which operate against the establishment of the multiple use system, as well as some potential dangers which could be harmful to cartography generally, as the system is developed:

1. The cost factor will be a strong deterrent to the practical implementation of the multiple use concept. Additional time and materials are necessary, not only for the conception and drawing of the separations, but to reproduce them: photo laboratory work, opaquing, etc. The shop that operates on a tight or small budget will be hard to sell on the production of detailed separations, where they have not worked with these before.

2. Most maps originate as special purpose maps; the general reference map is still the exception. In the operation of multiple use cartography, there will be the tendency to pull separations from different maps at like scale. With the lack of design similarity among special purpose maps, the resultant culled multiple use map could be a design horror, when developed by people inexperienced with maps. Should the design confusion bring attendant functional failure, multiple use cartography, and perhaps practical, applied cartography, will be in difficulty.

3. Considering the other possibility, success in organizing mapping activities into this program will inevitably lead to standardization, not only of scale but of design. This standardization has too often led to the lowest common denominator of design: specifications grouped mainly about line widths and accepted symbols. It is paradoxical and frustrating that this danger would become more apparent with the increase success of this program.

There are two basic areas of currently operative cartographic work which can most feasibly adapt to multiple use operation detail. The first is where maps are being prepared in large numbers by the same agency. In this regard, the state agencies potential, suggested by Sherman and Tobler, seems to be the most fruitful. All state mapping functions should use the same base or bases. Individual departments can prepare their own pertinent overlays (as separations) but with over-all scale and design considerations developed in advance. The second area covers maps being prepared for illustration and analysis of geographic regions, whether watersheds, river basins, interstate or intrastate regions. New major

regional studies are launched periodically, and older, well-established area programs (such as the TVA) continue in existence. The mapping of phenomena as separations in areas such as these can be effectively done on a decentralized basis which could easily follow multiple use concept operations. Again, preliminary organization of the base maps with regard to scale, design, coverage desired, etc., will be necessary. The result will be a wide array of maps, integrated in design, that are valuable resources for regional analysis, or for depicting an individual or set of areal circumstances.

It is not the intention of the writer to limit the usefulness of this concept to the examples immediately preceding. On the contrary, the widest possible uses should be considered. An exhibit could be prepared showing the breadth of multiple use cartography by means of sets of separations. This can probably be done most quickly in one or more of the cartographically-oriented university departments.

We must, however, watch closely the progress of this concept in practice, so that we avoid becoming surrounded by large quantities of put-together maps that are improperly or inadequately designed.

Copy has Two Sides

H. E. Benson
The Maryland-National Capital Park & Planning Commission

The use of a second color on a map or illustration prepared for offset lithography is frequently considered impractical due to the complexity and expense of the required overlays needed for color separation.

The use of two sides of a piece of art work has proven to be an inexpensive and time-saving method of developing accurately registered two color camera ready copy.

Basically the method consists of applying in reverse further art work on the back of an existing camera opaque medium. The result is a single piece of copy, both sides of which are photographed by the lithographer. Present thin base films allow the flipping of the reverse reading negative with no loss of detail in reproduction.

This use of solid, patterned, and screened zipatone materials permits a wide range of color tones and effects. Reverse-reading stick-up type allows type material to appear in two colors with a minimum of effort.

Diazo reproduced copy (Ozalid 105-H), light weight art board or layout stock, transparent enough to be used on a light table, provide excellent working media.

Recent Developments in Cartographic Instruments & Methods

Sheridan L. Hall
USAF Aeronautical Chart & Information Center

Negative Engraving (Scribing). The techniques of preparing negatives by scribing coated plastic sheets have become well established and there has been continual progress in the development of materials and tools. New coatings produce superior images and new colors improve visibility. The original red was replaced by green and the latter by orange which is the most translucent, yet has adequate actinic qualities. The newest neutral tone, transparent coatings permit scribing directly from copy without backlighting They are intended for conversion to positives by the "Quick Etch" process, or into reproduction negatives by the "Convert-A-Cote" process.

Guide images at first were made by the "Blueline" process, but now the "Watercote" process is used. The latter is simple and rapid with a large array of image colors. The sensitizer is wiped-on, the sheet exposed to the negative, then developed with ammonia water and dried.

Various vinyl chloride acetates are still used for the base sheets. A new material, polyethylene terephthlate, which has greater flex and tensile strength has been adopted for several uses. However, it is also highly inert and thus has limited use in the processes which involve etching and dyeing.

Scribed negatives can now be converted to transparent positives by the new ACIC process, "Quick Etch." Images are dye-etched into the plastic sheet and the scribecoat then washed off leaving the dyed lines as a positive image. The process is very effective in the Dystrip method of producing gradient, water and city area tints.

Another process developed recently is the "Convert-A-Cote" which consists of starting with a coating of any tint, usually neutral, then dyeing it to any color desired afterwards. It is especially useful in adapting scribed sheets for making reproduction plates. The dyes used are ordinary aniline in alcohol which have no effect on the vinyl base, leaving the lines clean.

Two new instruments have been developed lately, the "Rectagraver" and the "Turretgraver." The first is a semi-automatic mechanical device for rapidly scribing rectangular symbols and uniform straight lines. The second features quick changing from one size needle to another.

The Rectagraver is a small rectangular shaped carriage with an arm protruding from one end that has a chuck for a cutting blade or needle. The arm moves vertically and back-and-forward, being controlled by pressure of the operator's finger on a button located on top. Springs return the arm to a forward, lifted position at the end of a stroke. The Turretgraver is an improved tripod type engraver with a revolving holder containing eight different sizes of needles. The holder can be turned from one needle to another without lifting the instrument.

Photoscribe Process. This is a refined version of older similar processes used in negative engraving, but which were too critical and inconsistent for general use. Previous difficulties have been overcome so that it is now possible to obtain images of high quality. The process is far superior for reproducing complex images such as names, figures and symbols which are very difficult to scribe by hand. It is used on a production basis at ACIC to pre-etch names on color separations, and for exact copying of chart detail in overlap areas among sheets of a series in preference to scribing by hand.

Artificial scribecoat negatives are made photomechanically from positive copy which is suitable for contact exposure. The emulsion side of a scribecoat sheet is whirl-coated with Deep Etch positive sensitizer and dried. A normal Deep Etch exposure is made in a vacuum frame with the emulsion sides of both copy and sheet placed together. The image is completely developed with conventional Deep Etch developer. Next the Photoscribe solution is applied quickly and evenly over the entire image and spread gently while the etching occurs, about one to two and one half minutes. The sheet is then washed with water to stop the etching action and remove the stencil. It is ready for use when dry.

GSR (Graphically Simulated Relief) Model. Terrain, relief features or other objects are portrayed in the GSR Model by gradient distribution of detail on layers of transparent plastic. The Models are built up by superimposing sheets of plastic which represent intervals of the vertical scale Features, or portions of them, are drawn or otherwise applied to clear plastic sheets representing the correct elevations. These matched series of drawings are then accurately superimposed and firmly bound to form the Model. Objects appear to be suspended in correct vertical and horizontal relation within a block of clear plastic.

Sheets of various thickness can give different ratios of vertical exaggeration, or equal spaces can be left between the sheets. A plastic should be used that does not lose clarity when sheets are placed together as they usually will be in a finished Model. All sheets to be used for a Model are first stacked and clamped together, then holes are drilled for mounting posts. The latter enables the accurate control of registration during both preparation and assembly of the Model. Usual drafting methods and stick-up can be used, but the inks should be of a non-etching type. The sheets should be kept as clean and free of scratches as possible. A process such as Photoscribe should permit adaption of the technique to production.

Cartographic Expression in Geography

W. R. Heath and John C. Sherman
University of Washington

From the viewpoint of the geographer-cartographer, a puzzling situation exists. What is done in the name of geography is reasonably evident to the cartographer, but how cartography functions in relation to geography

does not seem as evident. Considering and comparing the kinds of effort used to produce, express, and communicate ideas may help to clarify their relationships. These efforts all involve the manipulation of symbols, either in a linear fashion as in writing or in mathematical notation, or as a complex of linear, point, and areal symbols on a map.

The geographer follows an orderly sequence in attacking a problem. He gathers data in the field, the library, or both. His efforts are directed toward extracting, comparing, interpolating, and interpreting the data. He produces syntheses and generalizations, having philosophical connotations and implications, with geographic substance or meaning. Until these ideas are prepared for publication they have relatively little significance, except to the geographer himself. Presentation in verbal form is important, but primary emphasis is given to publication--placing the material before others for their approval, information, or criticism.

He has a choice of several methods of developing ideas, recording them, and passing them along to others. The geographer uses writing as a means of expression, the quality of his writing being measured by how effectively he communicates with his audience. If, through his writing, he is able to clarify previously obscure concepts, and the communication is informative and thought-provoking, the presentation has merit. He may employ additional means of expressing his ideas, including statistical or mathematical arrangements, photographs, and maps or graphs.

The geographer who turns to statistical-mathematical methods does so because they provide ways of handling data quantitatively, add to the clarity of his conclusions, or because among other reasons, he prefers this approach. In doing so, he must select and arrange the material to give geographic substance or meaning to the final product. Except for its relatively greater complexity, the effort involved is akin to that of the geographer who arranges data by writing and re-writing. The ultimate intent is the same, to increase the value of the communication.

Photographs are used by the geographer as a supplemental means of delineating ideas. Photographic reproductions that are clear, sharp, of good quality, and have geographic meaning, furnish the reader information not as readily conveyed by word statements. The geographer skilled in photography has the advantage of an additional way of expression.

In the use of maps and graphs, geographers differ in their approach. Some consider the map as a preliminary or working device. Used for research compilation, maps enable them to discover ideas through visual observation of possible relationships not apparent heretofore, and act as guides in arranging their concepts or ideas. Finished maps, produced with their written material, are closely integrated with and related to that material, lending definition to expressions of thought. Other geographers, using words alone, add maps to their finished work because they feel that words are inadequate to convey total meaning, or because they feel that they are expected to use maps. The maps and graphs are supplemental, but their effectiveness may be reduced through lack of close integration with the written material. In either case, the geographer using maps has the problem of selecting and arranging symbols in a form which differs

from whatever other systems he may use. If he is competent in this process of selection and arrangement, the resulting map enhances expression. If he lacks competence in preparing the material, the geographer may go to the map draftsman for final preparation. If he cannot communicate his ideas to the draftsman, the end product will not express his thoughts effectively. Although the map is recognized generally as one of their most effective means of expression, many geographers have had too little opportunity to learn the handling of this system and its manifold ways of rendering ideas into communicable form.

All of these systems involve techniques, the manipulation of the symbols serving one purpose. The ultimate aim is a demonstration of intellectual concepts for the use of others, whether words are used alone as in some scientific writing, or mathematical expression as in statistics, or map symbols as in cartography, or some combination of these. In this connection, Robinson makes this comment:* "Cartography for educational purposes should be considered no more and no less creative than writing. That master of functional writing, W. M. Davis, happily extended this thought to cartography when he wrote: 'It is well known that there are many geographical matters which are better presented pictorially, cartographically, or diagrammatically than verbally. Hence, it is just as important to study the proper and effective use of various forms of graphic presentation, as it is to study the values of different methods, treatments, grades, and forms of verbal presentation.'"**

What is the geographer-cartographer attempting to do? His goal is the lucid presentation of information which demonstrates spatial ideas and concepts, the medium being the map. He uses point, line, and area symbols in either simple or complex ways. He wants to produce a functional object which will stimulate our mental processes and result in better understanding. These are creative efforts, using quantitative and qualitative data, and through various techniques produce visual communication.

The many alternatives in design, and the complexities and broad latitudes of modern graphic reproduction processes require the geographer-cartographer to study and analyze the qualities and characteristics of visual perception and presentation. He is not preoccupied with technique, but must consider and utilize any process, material or tool which will effect his ultimate purpose. To realize the full potential of cartographic symbolization, he must consider research and experience in other fields of visual presentation. He is required to devote time and research to the consideration of new or old materials or methods which are adaptable to his purpose. Through testing and research he enhances his ability to convey ideas via this medium. If while doing this, he can discover better, simpler or less costly modes of visual expression, and can combine all these elements for the benefit of his own work and that of others, he is fulfilling his obligation as a cartographer and serving the function of geography.

*Arthur H. Robinson, The Look of Maps, Univ. of Wis. Press, 1952, p. 20.
**W. M. Davis, "The Colorado Front Range," Annals Assn. of Amer. Geog., 1 (1911), p. 33.

NEWS FROM CARTOGRAPHIC CENTERS

Cartography Program at Oregon State College

Cartography is a three quarter sequence at Oregon State granting a total of 9 hours credit. The attempt has been made to give each quarter's work a certain degree of individuality and yet have each successive quarter's work carry the student's cartographic experience a step further.

During the first quarter there are discussion periods on fundamentals such as the earth's grid and map scale. The student is introduced to the concept of projections, but a detailed consideration is reserved for the second quarter. More emphasis is placed on the fundamentals of lay-out and balance of maps and diagrams, both in discussion and laboratory exercises.

Laboratory work during the first term stresses familiarization with basic equipment; few cartographic aids are used. All lettering is free hand as are all curved lines, such as isolines, and political boundaries. A plane chart and a Mercator projection provide good ruling pen practice as do line and bar graphs. An area symbol map done freehand affords additional practice with India ink. This map and the several others which complete the term's work also serve to introduce the student to map design.

During the second quarter, class discussions emphasize two topics -- projections and map reproduction methods. Other topics include further work with symbols, especially those which utilize curved lines and circles. The use of a greater variety of equipment and aids typifies the laboratory work of the second term. The compass, French curve and flexible curve, pantograph, and planimeter are among the instruments introduced by exercise. All lettering this term is done with mechanical lettering equipment. Exercises also include maps employing zipatone, paste-up lettering, and several additional projections and graphs, all of which include curved lines.

An investigation of cartographic literature provides the basis for discussion periods in the third term. Major topics include cartographic techniques, the history of cartography, and professional cartography. Laboratory work during this term includes terrain representation and major individual project. Experience with physiographic symbols and perspective precedes the making of a block diagram from a topographic map. The individual project varies from year to year as occasion dictates. This year the need on the part of the several staff members for a number of rather specialized wall maps or diagrams afforded a basis for individual assignments. The objective of the individual project is that the student bring to bear all that he has learned to produce a useable and satisfactory piece of cartographic work.

---R. D. Rudd

Practical Training in Field Inventory at University of Colorado

The training of geographers in the techniques of field inventory need not be purely an academic exercise. Operating on this assumption, the Department of Geography at the University of Colorado utilized an area east of Boulder for training purposes. The area, chronically damaged by floods, was selected by the Boulder Valley Soil Conservation District for mapping by the geography trainees. The flood problem was complicated by a surprisingly rapid development of residential use in the area by suburban realtors. It was felt that a series of detailed maps showing relief features, land utilization, soil characteristics, and land tenure would be of great benefit to the Soil Conservation Service in providing preliminary information for studying the local factors which contribute to the problem of recurrent flooding in the area.

The graduate class in field techniques was given the task of providing the necessary information. The total area was apportioned to two-man plane table teams which used telescopic alidades for contour determination. Each party surveyed an area of between 70 and 80 acres, tying their mapping to a control net and established bench marks. This was ideal for supervision and permitted mapping on a large scale. In addition, land utilization and ownership were plotted on aerial photographs. The finished maps were drawn to a scale of 1:2400. Soil characteristics had been previously mapped by the S.C.S. Some of these were compiled into a map of identical scale.

The project as a whole was a success and there were several points in its favor that will probably mean a repetition of training of this type in the future. (1) It was a truly practical problem and not simply an academic exercise. While its completion was not guaranteed at the outset, the project's scope was sufficiently reasonable to assure its fulfillment. The graduate students involved felt that their work had true professional significance, and this attitude showed in the care given to their work throughout. (2) It provided an opportunity to work a complete cartographic exercise -- from initial ground survey to the compilation of the finished map. (3) It created the necessity of compiling maps at a common scale from many different sources -- previous soil surveys, field notes, county records, and ground surveys. (4) It gave the trainees a variety of problems to solve through different media. (5) It was close to the campus and readily accessible. (6) The standard of work proved to be acceptable for the local soil conservation district which will use the completed study in its future work.

Working in a fresh area each year might be a disadvantage for the supervising instructor since there would be no uniformly standardized effort from year to year. But this shortcoming, if it really is one, is very slight in comparison to the significance of the work accomplished and in service rendered to the community. The Geography Department at the University of Colorado feels that other problem areas await like treatment and agencies such as the Boulder Valley Soil Conservation District, the

Boulder Planning Commission and the Boulder Municipal Recreation Department would gladly provide new problems of vital interest which can be treated geographically.

---Donald D. MacPhail

Aero Service Corporation

The compilation section of Aero Service's Relief Model Division is responsible for the design and drafting of the small scale multi-purpose maps which are published as three-dimensional Aero relief maps. The section's personnel includes four men trained as geographers, and three to six cartographic draftsmen. A major map job (such as a map of Europe, or the world) will engage a group of three: a geographer in charge, and two cartographic draftsmen. The entire section is supervised by Arnold Kreisman. The maps are designed and planned by the supervising geographer, the compilation done mostly by the geographer group leaders, and the drafting by the cartographic draftsmen along with the geographer group leader. Upon completion, the map is edited by the supervisor. Depending upon the area, a map will take from 9 to 18 months from inception to completion.

Although small scale map projects for three-dimensional presentation occupy most of the time, the section does engage in other cartographic activities: maps for outside clients, e.g., the small size world map produced a few years ago, small size watershed maps, a Philadelphia area map currently in progress. Experimentation with new materials and equipment is carried on continuously in the actual work situation. A new series of practical experiments in hill shading will attempt to compare a three-dimensional hill shaded map with the standard three-dimensional map and the flat shaded map. With regard to working on hill shading media, preliminary indications are that using a grey base, and working to highlight and shadows, gives more satisfactory results and is easier to do than working on a white or clear sheet. This chiaroscuro method has, of course, been done for some time by Richard E. Harrison.

---Arnold Kreisman

Maps of British Columbia

The Geographic Division, Surveys and Mapping Branch of the Department of Lands and Forests is the agency responsible for official maps of British Columbia. Some of the sheets published within the past year are of particular interest to geographers. Among them are the following: (a) Four new maps in our "two-mile" series. These sheets, at a scale of 2 miles to the inch and on the Universal Transverse Mercator projection, contain a wealth of cultural information in addition to contours and basic physical nomenclature. Planimetry and hypsometric data are from the latest survey information. It is not surprising that the two-mile series

has proven very popular among geographers, planners and other professional groups as well as with the lay public. A nominal charge of 25 cents is made for each map sheet. (b) Three new base maps of the province. These are the first to have appeared in recent years and they will likely remain our standard base maps for some time to come. Map I CX, (16" x 20"), is at a scale of 55 miles to the inch, Map I J (28" x 36") is at 30 miles to the inch, and Map 1A (in 2 sheets, each about 36" x 50") is at 16 miles to the inch. (c) Landforms maps. Of special interest to physical geographers are the landforms editions of our "10-mile" series. This series, designed to cover the province in 6 sheets has been much in demand. Landforms editions for 3 of the 6 sheets are now available, West Central British Columbia having been published within the last year. The landforms compilation for the 4th sheet, East Central British Columbia, has just been completed. The terrain representation is descriptive rather than interpretive and may be considered a modification of the Raisz technique. It is based upon the examination of vertical and oblique air photos supplemented with contour maps and pertinent literature where such are available. Two editions of each sheet are published, one with landforms in grey and showing roads and other cultural data, the other with landforms in sepia and without roads. Copies of either are available at $1 each.

---A. L. Farley

Cartographic Training at ACIC

Changing world conditions have resulted in the design of vastly new weapons systems. These systems require increased flexibility in the development and production of the many support products. National defense depends on a high potential capability of production for any particular support product. This capability must be kept at a maximum. The Aeronautical Chart and Information Center is contributing to this capability by substantially increasing the development and production flexibility of existing and future cartographic products. Hence, the rapidly growing complexity of our nation's air power demands the increased professional growth of the cartographer.

For the past ten years most of the professional cartographers employed have come from academic institutions. Individuals having appropriate academic backgrounds are contacted by recruiting teams at ninety colleges and universities. Those selected are offered starting grades of GS-5, 7 or 9, depending on their academic degrees.

Experience indicates that the best academic background for a cartographer is supplied by training in geography. This is demonstrated by the valuable contributions of a professional nature made by geography graduates during the past few years. Graduates in geology, engineering, forestry, mathematics and physics also have proven valuable.

Initially, the new cartographer is a full time student in a six month cartographer training course. The course is designed for initial profes-

sional development. This course introduces the cartographer to a wide variety of cartographic methods, techniques and processes. The faculty of the training course is composed of professional cartographers, some hold Masters degrees in geography.

The curriculum is extensive as well as intensive. The extensive nature is related to a multitude of assignments which the individual may meet during his career. The intensive aspect provides detailed cartographic knowledge related to those assignments which he will meet most often. As a result, the individual's ability to attain rapid proficiency is assured, regardless of future assignments. Because of the individual's increased value, special arrangements were made with Civil Service Commission to promote GS-5's, who successfully complete the course, to GS-7. Without the training course opportunity, an individual would have to hold a GS-5 for one year before becoming eligible for promotion to GS-7.

The objectives of the training course are developed through lecture, laboratory, discussion and field methods. Included in the curriculum are: introduction to the ACIC organization and its functions within the National Defense Establishment; historical development of cartography; projections, grids and grid systems; geodesy, surveying and astronomy as they are related to cartographic sciences; photogrammetry; compilation methods; map, photographic, geodetic and intelligence document research; reproduction techniques and development; and six weeks of projects designed to apply to all of the above course portions.

After graduation, the cartographer is given his production assignment in which he will receive a variety of advanced training on a part time basis. In addition, his professional self-improvement is actively encouraged through formal courses at local universities, extension courses, and participation in professional societies. As a result, the professional cartographer is presented outstanding opportunities for enhancing the quality of his products as well as increasing his own professional growth.

---Nelson C. Clark

ASSOCIATION AFFAIRS

Summary of Actions of Final Meeting of 1957 Council
August 17, 1958, Santa Monica, California

1. The Secretary reported that:

a. The Tellers' Committee for the national election tabulated ballots on July 18, 1958 and that Lester Klimm was elected President, Paul Siple Vice President, and G. Etzel Pearcy and Kirk Stone, Councilors.

b. The Honors Committee selected Stephen B. Jones as Honorary President (to give Banquet address at Pittsburgh). Rafael Pico was selected as the recipient of the Outstanding Achievement Award "for his distinguished service in many official capacities in bringing sound geographic understanding to bear on the problems of the economic development of the Commonwealth of Puerto Rico." Meritorious Contribution awards were given to George F. Carter "for his physiographic and botanical studies of the traces of prehistoric man in the New World"; to Hildegard B. Johnson "for her careful and perceptive studies of the geographic history of developing settlement and agriculture in the Middle West"; and to Edward L. Ullman "for his qualitatively conceived and imaginative investigations in the geography of transportation and spatial interaction."

c. Three ballots were circulated to the Council by mail since March 8, 1958. The first approved all recommendations by the Executive Committee at its meeting on March 8. The second established a committee on Climatology to cooperate with a similar committee of the American Meteorological Society, and named members of the Program Committee to serve with E. Willard Miller as Chairman. The third established the Council slate for the Nominating Committee, Honors Committee, and one replacement on the Credentials Committee for submission to the Annual Business Meeting.

2. The Central Office Manager reported that as a result of the need to move from the Library of Congress new office equipment would be needed to supplement the filing cabinets, electric typewriter, duplicator and addressing machines. The personnel of the office now consists of three part-time employees to the extent of approximately 80 hours per week. The budget for the Central Office operations this year includes $9,000 for routine operations, $2,500 for rent (which will be required when the office is moved to new quarters) and $2,500 for costs of moving and purchase of equipment. The Secretary reported that due to accumulated compensatory leave during preceeding years the Central Office Manager has been absent from the office considerably more than the amount of sick and annual leave earned this year.

3. The following resolution was approved: For authorized personnel traveling on Association business a per diem of $12 may be allowed. If expenses are itemized, a maximum of $15 per day may be paid. Any exceptions must be approved by the President and Treasurer of the Association.

4. The Treasurer's report for 1958 and fiscal year 1957 was received and accepted with thanks. The Treasurer commented that because of careful management of some of the funds (especially the Annals) and because of the increase in dues and subscriptions the Association is solvent for the first time in several years.

5. Approval was given to the request from James M. Blaut to serve as an AAG delegate, with travel support from the ACLS, to attend meetings of the International Union for the Conservation of Nature and Natural Resources at Athens in September.

6. Committee reports published in the July 1958 issue of The Professional Geographer were reviewed and accepted. Supplementary reports from the following committees were also considered:

a. The Council approved a request from the Cartography Committee to solicit technical papers in consultation and cooperation with the editor of the P. G. for publication in that journal. No special budget for unusually large editions of the P. G. was approved and it was agreed that if the editor found the total budget to be inadquate for publication of essential material the problem should be taken up with the Treasurer.

b. Approval was given to Placement Committee recommendations that: (1) Lists of position vacancies be circulated monthly to those members on the Placement Committee mailing list. The Council disapproved a recommendation that an additional fee of $1 be charged for Placement Committee service and asked the Treasurer to establish an initial account of $250 to finance operations in the Placement Committee. The Central Office will reproduce and distribute the position lists prepared by the Placement Committee. (2) Approval was also given for the Placement Committee to undertake new functions such as the stimulation of interest in employing more geographers and the exchange of American and foreign geography teachers.

c. The Committee on Exchange of Publications recommended accepting exchanges only with organizations which produce a research journal of significance in geography and cartography. Because of the interest of the President-elect in wider distribution of AAG publications to foreign geographers who are unacquainted with them and who would find it virtually impossible to place subscriptions because of international monetary exchange difficulties, he was authorized to appoint a small committee to investigate more active circularization of foreign geographical centers and geographers to effect a wider distribution of AAG publications.

7. The proposal from the Kraus Reprint Corporation to reproduce by offset methods out-of-print volumes of the Annals and to purchase the existing stock of back issues was approved in principle but some questions

remained unanswered. The Council appointed a subcommittee consisting of the President, Treasurer, and Secretary to negotiate and enter into a contract if a satisfactory agreement is reached.

8. Chairman of Local Arrangements for the Santa Monica meeting suggested that meeting places be selected 5 years in advance and then only on the basis of facilities actually in existence. He also pointed out the need for a convention expert in the Association to advise on convention arrangements year after year. He thought that such an expert might be appointed for as much as 10 years if someone could be found to accept such an appointment.

9. The Chairman of the Publications Committee was authorized to negotiate, with the approval of the Treasurer and Secretary, a contract with Miss Rhoda Heinecke to compile an index to Annals Volumes 26 through 50. The Publications Committee estimated the cost for compilation at $750; the printing of 3,000 copies would cost an additional $3,000; and one estimate on binding the 3,000 copies is $1,950. The Council advised that consideration be given to the establishment of a special prepublication price at a substantial reduction from the final publication price. It was also suggested that the index might be distributed widely on exchange as a means of attracting the attention of foreign geographers to the nature and contents of the Annals.

10. The Publications Committee reported that the Thomas supplement to the Annals will cost approximately $2,000 but that only $1,000 was granted by the Wenner-Gren Foundation. Mr. Thomas is seeking supplementary funds.

11. A recommendation to provide 50 reprints without charge to authors of review articles in the Annals was approved.

12. A manuscript of approximately 175 pages, double spaced, on the Status and Trends of Geography in the United States 1952-57 was compiled by Clarence Jones. The Publications Committee recommended reproduction and distribution of that manuscript as soon as possible. The Council appointed a subcommittee consisting of the Secretary and Treasurer to obtain a technical editor (from a group approved by the Council) and to negotiate the typing without justified margins and reproduce by lithograph or offset methods enough copies for free distribution to the membership if the total expenditure, including typing and postage, does not exceed $400.

13. A recommendation to publish unusual job opportunities in the P. G. was approved on condition that the editor of the P. G. and the Chairman of the Placement Committee agreed.

14. The Publications Committee reported that editing is progressing on a manuscript from Richard Hartshorne; that a second manuscript is in preparation by Wesley Calef and that a program of active recruitment for new monographic studies should be considered.

15. A recommendation to stop discounts to libraries on AAG serial publications was approved. The policy of continuing a 10% discount to agents would be continued.

16. President Harris reported that progress is being made on negotiations for an exchange of American and Russian geographers. Further work on the problem will be done by him in cooperation with Wallace W. Atwood and William Thurston.

17. The Secretary announced that the ACLS has requested from constituent societies a list of international conferences to be attended by delegates within the next 3 years. A subcommittee of the Treasurer and Secretary was appointed to draw up such a list.

18. A proposal to increase the payments to Divisions from 50 cents to 75 cents per paid member was referred to the Division Committee Chairmen for further consideration.

19. A policy of definite terminal appointments and rotation of personnel on ad hoc committees was approved in principle.

20. A recommendation for the payment of per diem to regional division chairmen for extra time spent at annual meetings to attend Council sessions was disapproved.

(Divisions not represented: Middle Atlantic, New England-St. Lawrence Valley, New York-Ontario, Southeastern, and West Lakes.)

Summary of Actions of First Meeting of 1958 Council
August 20-21, 1958, Santa Monica, California

1. Actions of the last meeting of the 1957 Council were reviewed and the Secretary called attention to six items of unfinished business. The following actions were taken on those items:

a. Agreed that the Treasurer will make available, upon request from the Chairman of Local Arrangements, an advance of funds up to $500 for use by the Local Arrangements Committee for the Pittsburgh meetings until money comes in from exhibitors, registration fees, etc.

b. The Placement Committee Chairman was authorized to draw up to $250 for operations in connection with the preparation, reproduction and distribution of placement lists to those members registered for Placement Committee service.

c. A recommendation of the Committee of Division Chairmen to increase payments to Division treasuries from 50 to 75 cents per paid member was modified to retain the automatic payment of 50 cents per paid member and to permit Divisions to draw upon the Association treasury up to an additional 25 cents per paid member upon justification of the need for the additional funds.

d. The recommendation of the Local Arrangements Chairman for the Santa Monica meetings that a convention advisor be appointed for a long term was deferred for consideration by the Executive Committee.

e. No action was taken on the recommendation of the AAG delegate to the AAAS that the AAG should petition for the establishment of a separate geographic section in the AAAS. A majority of the Council members present felt that geographers might not contribute enough papers to warrant a separate sectional program and that some good

9. Thomas R. Smith was named Chairman of the Nominating Committee, and the Secretary was directed to write letters of appointment to Chairmen of the Credentials and Honors Committees in accordance with Council recommendations.

10. In response to a request from the Bureau of Census to establish a committee to advise with the Bureau on improvements which might make census materials more valuable for geographic purposes, 10 members were named to a Census Advisory Committee.

11. It was reported that Guy-Harold Smith had agreed to prepare a memorial for Armin K. Lobeck. Responsibility for obtaining Council opinion concerning the preparation of memorials in the Annals for deceased members and the selection of suitable authors was delegated to the Secretary, who was also asked to check progress on memorials if they are not submitted within two months.

12. The Secretary presented an invitation from the Institute of British Geographers to organize and provide leaders for some tours of about a week's duration in the British Isles if the AAG can provide information concerning the number of American geographers who might stop enroute to or from the IGU Congress in 1960. The Council suggested that the invitation be referred to the U. S. National Committee for the IGU and that the Secretary of the AAG cooperate with the Chairman of the U. S. National Committee in determining methods to publicize this invitation and to tabulate and coordinate responses.

13. Committee appointments were considered and the list will appear in a future issue of the P. G.

14. Edwin Foscue, Chairman of Local Arrangements for the meetings in Dallas April 18-22, 1960, reported on hotel facilities, field trip plans and the possibility of a special post-convention tour. He was authorized by the Council to appoint his own local arrangements committee members and requested to notify the Secretary as soon as that group was complete.

15. Members were selected for the Program Committee for 1960.

16. In accordance with a recommendation from Howard Roepke, Chairman of the Punchcard Techniques Committee, the scope of that committee was broadened and its name changed to the Committee on Mass Data Processing Techniques. The Council also named an additional member on that committee.

17. Richard Edes Harrison was named to succeed Erwin Raisz as editor for the map supplement to the Annals.

18. The Secretary was asked to prepare a letter of appointment in accordance with Council instructions for a replacement of Kenneth Hare whose term had expired on the editorial board for the AAG Monograph Series.

19. The Council nominated Charles M. Davis as the AAG representative to the Division of Earth Sciences, NAS-NRC.

20. The Secretary reported that a mail ballot of June 16, 1958 had approved Clarence F. Jones and Peveril Meigs as AAG nominees to the NAS-NRC National Committee for the IGU to serve until June 30, 1961.

(Edwin Foscue to serve to 1959 and George Kish to 1960.)

21. The Secretary also reported that Walter W. Ristow had been appointed as AAG delegate to the ACLS until 1959 and that it was customary for the delegate to the AAAS to serve for three years. The appointment of Alfred Meyer in that capacity was made last year.

22. Clyde Kohn was named to succeed Norman Carls as delegate to the NCGE.

23. Budget for 1959.

a. Approval was given to a recommendation by the Treasurer that the expenditure of $2,000 on research grants be budgeted and that the Research Grants Committee be permitted to use the funds up to $1,000 for a single grant.

b. The Secretary was authorized to notify committee chairmen at the time of their appointment that requests for funds to cover expenses of committee operations should be submitted to the Secretary for approval by the Treasurer and Secretary in advance of expenditures. Requests for substantial sums for committee operations may be referred to the Executive Committee by the Treasurer and Secretary.

c. A request from the Editor of the Annals for $400 to pay for clerical and typing assistance on the Annals was approved in principle and the Editor was instructed to use the money at his discretion from the total funds budgeted for the Annals.

d. The draft budget presented by the Treasurer was accepted for the calendar year 1959.

e. It was agreed that any lump sum acquired through sale of back issues of the Annals to the Kraus Reprint Corporation will be recorded as income not to be used in financing normal operations of the Association.

24. The Secretary was instructed to investigate the desirability of continuing an exchange of the P. G. for the Scholastic Teacher and to take appropriate action.

25. The Secretary reported that in response to suggestions from Clarence F. Jones and some other members of the Council a new draft had been prepared for the proposed questionnaire on graduate student awards in Geography Departments. The Council recommended the addition of a statement on the questionnaire which would make it possible for responses to indicate whether they should be treated confidentially or might be published (including the name of reporting institutions). After returns have been tabulated, the Executive Committee will decide in what form the information is to be released.

26. The Secretary presented a letter from the Junior Chamber of Commerce requesting nominations for individuals under 36 years of age who might be eligible for one of the "1958's 10 Outstanding Young Men Awards." Council members were requested to submit any recommendations to the Secretary within ten days.

27. In response to a letter from the Chairman of the Organizing Committee of the International Congress of the History of the Discoveries

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to be held in Lisbon as part of the celebration of the 5th Centennary of the Death of Prince Henry the Navigator, the Council recommended submission of the names of geographers listed in the directory as having a special interest in historical geography.

29. The Secretary presented the 1958 edition of the APCG Yearbook for inspection of its new format.

(Divisions not represented: Middle Atlantic, New England-St. Lawrence Valley, and New York-Ontario.)

Placement Committee

At the Santa Monica meetings of the AAG, the Council approved a new procedure recommended by the Placement Committee to improve its service to members, namely, the publication of a monthly list of current openings in the field of geography to be distributed without cost to all AAG members registered with the Committee. The first list will be published as soon as possible, certainly during the fall of 1958. Until it is issued the old methods will still be in effect in order to prevent any break in the continuity of Committee operations.

According to the new procedure all openings for geographers reported to the Placement Committee will be listed, along with descriptions of the job and the qualifications required of the candidate. The procedure, however, will be kept flexible enough to provide for exceptional situations, such as an emergency need for a geographer or cases in which an employer might want the vacancy announced without naming the institution.

For the AAG, the listing of openings has many advantages. Members registered with the Committee will know of all vacancies announced and can decide for themselves whether they qualify and are interested in applying. They will no longer have to rely upon the subjective judgement of seven committee members who may not know them or even have the necessary knowledge of their abilities, experience, and personal problems. The employers will have the satisfaction of knowing that all qualified geographers seeking placement will be notified of the vacancy. Like the applicants, the employers will not have to rely upon the Committee members to act as middlemen. The Placement Committee, in turn, will have more time for broader phases of the work, since each job reported will no longer require individual decisions concerning the qualifications of each of the 200 geographers registered with the Committee.

While the program is in a formative stage, the Placement Committee will require more than average cooperation from the AAG membership as a whole, as well as from applicants and employers. In particular, the Committee is anxious to get (1) fuller coverage of jobs in the teaching field at all levels, (2) notifications of openings for geographers in fields other than teaching, and (3) leads concerning new types of positions for which geographers are qualified, preferably with the names of organizations and persons that should be contacted.

Remember that the Placement Committee is an integral part of the AAG and that the Committee needs and welcomes any suggestions and assistance that you, as individual members, have to offer. The address of the Placement Committee is: Association of American Geographers, The Library of Congress, Washington 25, D. C.

PERSONAL NEWS

Ina Cullom Robertson who retired recently after serving 36 years as Head of the Geography Department at the Valley City North Dakota State Teachers College has become associated with the Edgar F. Anthony Education Tour Service of Dallas, Texas. Her work will be to develop geographic tours for educational purposes, revise itineraries and to edit travel brochures. Besides being a longtime member of AAG, Miss Robertson was Vice President (1951), Secretary (1952-55) and President (1957) of the National Council for Geographic Education.

Oswald Schmidt of the University of Pittsburgh will spend a year beginning July 1958 as a Fulbright Lecturer at the University of Dacca, Teachers Training College, Dacca, Pakistan.

Leslie Hewes, University of Nebraska, has accepted a Fulbright Lectureship at the University of Vienna for 1958-59.

David Firman will spend the academic year 1958-59 in Pakistan lecturing in geography at the University of Peshawar, and conducting field work on irrigation and agriculture in the upper Indus Valley under a Fulbright Grant.

Hilgard O'Reilly Sternberg, professor of Geography at the Universidade do Brasil, at Rio de Janeiro, Director of the Center for Research in Geography of Brazil and First Vice President of the International Geographical Union, will spend the second semester of the academic year 1958-59 at Indiana University as Visiting Professor of Geography. Following this period, Professor Sternberg will speak at several U. S. universities.

Erwin Raisz is working on a large land-form map of Mexico, based on air photos and field work. During the fall semester he will be at the University of Florida in Gainesville, to complete an atlas of that state. His cartographic workshop remains at 107 Washington Avenue, Cambridge, Mass.

ANNOUNCEMENTS AND REPORTS

AAG Pittsburgh Meeting

The 55th annual meeting of the AAG will be held in Pittsburgh from March 30 through April 2, 1959, with the University of Pittsburgh the host institution, and Penn-Sheraton Hotel as headquarters. Norman Carls is chairman of the Local Arrangements Committee.

The program will include both invited and voluntarily contributed papers. December 1 is the deadline for receipt of abstracts by the Chairman of the Program Committee, E. Willard Miller, Department of Geography, Pennsylvania State University, University Park, Pennsylvania. The abstract should not exceed 250 words in length, and since it is the sole basis for judging and selecting a paper by the Committee, the author should make certain that it properly reflects the actual content of the paper.

The author should also make certain that there are no typographical or other errors in the abstract, since the tight schedule for printing the program does not allow time for editing. Rules governing preparation of abstracts will be the same as for past national meetings. These are as follows:

1. Abstracts must be typed and must be submitted in triplicate
2. The original must be on good weight bond paper, $8\frac{1}{2}$" x 11".
3. The name of the author, together with his affiliation or address, must appear at the upper left-hand margin of the first page. The name is to be in upper case letters.
4. The title of the paper should begin two lines below the author's name and at the left-hand margin. It should be typed in caps and lower case and should be underlined.
5. The body of the abstract should begin two lines below the title and should be typed with paragraph indentations.
6. The abstracts must be double spaced with reasonable margins.
7. The abstract is not to exceed 250 words.

Most of the program will consist of uninvited papers that will be arranged into individual sessions by the Program Committee. Not more than fifteen minutes can be granted for the presentation of a paper and no person can be granted the privilege of presenting more than one paper. To facilitate planning and so that the program can be printed in the January 1959 issue of The Professional Geographer, it is urgently requested that abstracts be submitted at your very earliest convenience. The committee encourages the presenting of papers which express new ideas, new concepts and new interpretations.

Foreign Field Research Program

Doctoral candidates or recent recipients of the doctorate who would like to have the opportunity of doing research abroad should investigate the Foreign Field Research Program. The sponsors supply transportation and expenses for field studies of six months or more according to the need of the investigator. Twenty-four awards have been made in the three years since the program was instituted and most of the projects lead to doctoral dissertations. The deadline for applications is December 1 and the results of the competition will be made known to the applicants before January 1. Full information and application forms may be obtained from Foreign Field Research Program, Division of Earth Sciences, 2101 Constitution Avenue, Washington 25, D.C.

Postdoctoral Study in Statistics

Awards for study in statistics by persons whose primary field is not statistics but one of the physical, biological, or social sciences to which statistics can be applied are offered by the Department of Statistics of the University of Chicago. The awards range from $3,600 to $5,000 on the basis of an eleven month residence. The closing date for application for the academic year 1959-60 is February 16, 1959. Further information may be obtained from the Department of Statistics, Eckhart Hall, University of Chicago, Chicago 37, Illinois.

NEWS FROM GEOGRAPHIC CENTERS

University of Georgia

In mid-April construction began on a new building to house the Geography and Geology department and the department of Mathematics. When completed in June 1959, the new facility will provide about three times the space now available to the department. This building has been designed to the specifications of the staff. Among its features will be individual, private, research labs connected with each of 13 staff offices; individual office and work space for 24 geography graduate students; three large cartography-photogrammetry labs with luminous ceilings plus skylights; specialized labs for advanced work in climatology, meteorology, geomorphology, topographic modeling, and industrial resources analysis. Five labs for advanced geology areas and two seminar rooms also are included. There will be a map library of about 1,200 square feet. All areas of the building will be air conditioned. The construction contract calls for completely new office, instructional and research equipment throughout.

The large number of cartography and photogrammetry labs in the new building highlights a recent curricular development. Over the past five years the School of Forestry has placed numbers of advanced students in the Air Photo Mapping and Interpretation course. The experiences of these students led the Forestry faculty to abandon plans to offer a course in air photo interpretation in their own school; instead, all foresters now are required to take Geography's Air Photo Mapping during the senior year. In consequence, enrollments in the course now run from 30 to 40 quarterly. The basic course is taught by James A. Barnes and Ray M. Northam, and Barnes offers two advanced courses for geographers and foresters.

Robert S. Langley, formerly at Chicago Teachers College, joined the staff in the fall of 1957 and is expanding course work in the Europe and Soviet Union areas. David deLaubenfels received a six-months research grant from the University of Georgia in June 1957 for field work in southeast Australia and Tasmania. He returned in January 1958 and was promoted to Associate Professor in June 1958. Merle Prunty received a Guggenheim Fellowship in June 1957, for work on contemporary plantations in the South and was engaged in field work from Virginia to Texas until January. In April, Edward A. Ackerman spent a week with the department as a Visiting Scholar, under auspices of the University Center in Georgia. He conducted two seminars on fundamentals in geographic research, and presented lectures on water resources and urban developments in the United States. The department was host to the Southeast Division AAG meeting in Athens in November 1957.

During 1957-58 twelve graduate students -- all Master's candidates -- were in residence. Until the new building is completed no more than twelve can be provided with adequate office space. The department will continue its policy of admitting only candidates for the Masters until the "shakedown" period in the new facility is over.

University of Nebraska

Robert G. Bowman will be acting chairman of the Department of Geography at the University of Nebraska for the year 1958-59, in the absence of Leslie Hewes, who will be on sabbatical leave of absence. Others on the full time staff include Charles B. McIntosh, newly appointed assistant professor, recently at Christchurch, New Zealand, Texas, and Eastern Illinois; Ruth E. Baugh, visiting professor (from UCLA); and E. S. Simpson, visiting associate professor (from Liverpool). Lecturers Frank E. Sorenson (Director of summer sessions) and Welby R. Stevens (U. S. Weather Bureau), and John C. Weaver, Dean of the Graduate College, will take part in the teaching program of the department on a part-time basis. Dean Weaver is scheduled to conduct a seminar in economic geography in second semester. Esther S. Anderson has retired from the university to accept a position in the Bureau of the Census.

Olive J. Thomas died in Milwaukee on August 16, 1958 at the age of 66. She was born and educated in Chicago, receiving the B.S. degree at the University of Chicago in 1913. Miss Thomas then went to the University of Wisconsin where she was awarded the M.S. degree in 1924. After teaching in the Illinois public schools, Milwaukee-Downer College, and Whitewater State Teachers College in Wisconsin, she joined the staff of the University of Wisconsin--Milwaukee in 1943. She was active in the National Council for Geographic Education and Wisconsin Council for Geographic Education, and well-known for her co-authorship of Whitbeck and Thomas, The Geographic Factor.

NEW PUBLICATIONS

National Atlas of the United States. Various U. S. Government Agencies. Washington 25, D.C.

After years of effort on the part of many individuals and many groups, a material start has been made in the issuance of a National Atlas. Particular credit is due the hard-working Committee on a National Atlas of the United States, part of the Division of Earth Sciences, National Academy of Sciences, National Research Council. This group solicited the cooperation of government agencies and established format standards, and with tireless enthusiasm seeks to expand the Atlas.

At present the Atlas consists of some 60 sheets which may be assembled in a loose-leaf binder. These sheets are the products of government agencies, and are maps which they normally issue, but are prepared to Atlas specifications. The 1954 Census of Agriculture is the basis for 41 of the sheets which depict in careful, clear detail a vast amount of information on such subjects as landuse, farm products, and farm facilities, value and ownership. Changes during the last 5 or more years are graphically illustrated, and on the back of each sheet is an informative text. These sheets were prepared by the U. S. Bureau of the Census, and cost 10 cents each from the Government Printing Office. The Bureau's map of urban and rural population distribution for 1950 is free.

The contribution of the U. S. Weather Bureau is a set of 12 sheets showing the standard deviation of monthly average temperature. These sheets are free.

A colorful map of Generalized Types of Farming in the U. S. was prepared by the Agricultural Research Service, Department of Agriculture who distribute it free of charge. Also free are the maps showing present status of published soil surveys (Soil Conservation Service), status of aerial photography and status of topographic mapping (U. S. Geological Survey).

A serious handicap will already have been noted. The maps cannot be ordered from any one place but must be obtained through the offices customarily used by each agency. A current list of National Atlas maps with information on prices and where they may be ordered, is available from Map Information Office, U. S. Geological Survey, Washington 25, D. C.

This may seem like a meager start for a country with the wealth, size and scope of ours. But it is a start, with lots of growth potential, and if it receives our support and encouragement, we may in time be able to point with pride to an atlas worthy of our nation.

Hammond's Ambassador World Atlas. C. S. Hammond & Co. N.J. 1958. $14\frac{1}{2}$ x 11 inches. 416 pp. $12.50.

This is the sixth printing of the atlas since its first publication in 1954 which indicates not only its popularity but the sincere efforts of the com-

pany to keep it up to date, no small chore in these ever-changing times. The publisher's objective of making a comprehensive and, at the same time, detailed atlas is apparent in the wide variety of maps included and the lengthy informative index. All the maps in the first 150 or so pages are in full color, are clear and easily read. The first 10 maps provide a world-wide view of various physical and cultural aspects. Maps of the Arctic and Antarctic contain the routes of some explorers, mainly prior to 1937. Then follow the sections devoted to Europe, Asia, Africa, Australia and the Pacific Ocean, South America, and North America. Each section contains a political and a physical map; maps of the vegetation, population distribution, temperature and rainfall, and resource-relief; separate maps of the individual countries and numerous inset maps. Canada and the United States receive even more complete treatment.

The "World Index and Gazetteer of Cities" occupies over half the book and contains over 100,000 entries. The latest available population figures are given for urban and political units, and many of the entries have descriptive material. Detailed street maps of the business centers of about 80 of the world's leading cities are included.

An 11-page table presents useful information on the government, money, language, religion and products of the countries and major political divisions of the world.

Although each atlas presents different qualities to each user depending upon his needs, the common frustration of being unable to find a particular place or feature should be less frequently experienced with this atlas for it contains a vast number of easily located, readable place names.

European History Atlas. J. H. Breasted, C. F. Huth & S. B. Harding. 1st ed., 2nd print. Denoyer-Geppert Co. Chicago. 1957. xvi and 62 pp. Student ed. $1.35. (11 x 8½")

Forty eight pages of colored maps depict chronologically the changes in the face of Europe from about 250 B.C. to the present day. Numerous inset maps are used to show details, and several series of very small scale maps graphically illustrate changes such as the spread of Roman influence from 264 B.C. to 44 B.C. An impressive amount of information has been retained on the atlas maps, adapted from the well known Breasted-Harding wall maps. The final 14 pages are black and white maps showing Europe in its world setting through World War I and II and in 1950. An 11 page index gives latitude and longitude for each entry. In the regular edition ($1.75) there is included a section of explanatory notes.

Our United States--Its History in Maps. Edgar B. Wesley. 1st ed., 2nd print. Denoyer-Geppert Co. Chicago. 1957. 96 pp. $2.00 (paper cover), $3.75 (cloth bound). (11 x 8½)

This map and text portrayal of the settlement, growth, present status and world relations of the United States starts logically in Europe and briefly describes the spread of Western civilization, periods of exploration, and then the Indians and their culture. The development of the United States is followed chronologically through its colonial period, west-

ward expansion and various wars. Particular topics such as transportation and population growth receive special attention. A series of maps show present conditions of transportation, land use and conservation, farming and grazing, and manufacturing and minerals. The final section on the United States as a world power shows the acquisition of overseas possessions, participation in the two World Wars, and the various postwar international defense agreements. A useful calendar of events and reasonably detailed index are included. The maps are colored, easy to read and well selected.

The Denoyer-Geppert Atlas of American History (1957) is a 32 page abridged edition of Our United States, and includes three fourths of the maps but omits the text. Price $1.35.

The University Atlas. Harold Fullard & H. C. Darby, editors. 8th ed. George Philip & Son Limited. London. 1958. 9 x 12". xxiv and 264 pp. Denoyer-Geppert Co., distributor. $7.50.

This edition is a complete revision of the well-known, much-used atlas. The major changes include an increase in the scale of many of the sectional maps, the addition of new maps, and enlargement of the index which now contains over 50,000 entries.

The atlas opens with some 200 climatic graphs, about 30 each for Europe, British Isles, Asia, Africa, Australia and New Zealand, North America, and South America. Each graph shows the march of temperature in degrees Fahrenheit and Centigrade and the mean annual range, monthly pressure in inches and millibars, and average monthly rainfall in inches and centimeters, plus the total rainfall. The stations are located on small index maps and reference the climatic maps.

The next 13 pages are maps of world structure, climate, soils, vegetation, population density, political divisions and communications. Two very interesting maps of the polar regions plot the routes of explorers through 1949, and show by different colors along the coasts the progress of exploration. The extent and duration of sea ice is also depicted. A two-page map of the Atlantic Ocean indicates by layer colors the bottom topography and also plots major sea routes and distances.

Then follows an impressive series of maps on Europe as a whole, and another on the British Isles, showing physical features, geology and structure, soils, climate, vegetation, population density and political divisions. There are 8 regional maps of the British Isles and 25 of Europe. Asia, Africa, Australia, New Zealand, North and South America each receive similar, though slightly abridged, treatment.

All of these easily read, clearly printed maps are in full color, with eight or nine shades from green to purple used for contour intervals and four or five shades of blue for water depths. Numerous spot heights are shown. The scale of the sectional maps, ranging from 1:1 million for most of the British Isles to 1:16 million for South America, allows the inclusion of considerable detail. The colors and symbols are distinctive, and pleasingly applied. The spelling of the abundant, well-placed names follows the official list and rules of the Permanent Committee on Geo-

graphical Names and the U. S. Board on Geographic Names. This atlas, as its forerunners, will undoubtedly occupy an important place among the reference books of American geographers.

The Canadian Oxford Desk Atlas of the World. E. G. Pleva, ed., assisted by S. Inch. Oxford University Press. Toronto. 1957. 8 x 10 inches. 137 pp. $4.75.

This atlas of 103 pages of colored maps of all the world regions is a product of Canadian planning and is designed primarily, but not exclusively, for Canadian use. The first 28 pages are devoted to maps of Canada; 8 full-page maps show details of such aspects as population, transportation, vegetation, climate, soils, agriculture, geology and physiography, minerals and industry of Canada as a whole, and then follows a general map of each province or region with an inset giving a brief note on the province and data on area, population and production based on the 1956 Canadian census.

North and South America, Africa, Europe, Asia and Australasia receive less exhaustive treatment, but for each there are maps of the terrain, vegetation, rainfall, population and communications. Thirteen pages are devoted to world maps of various physical and cultural phenomena. Two maps plot the 1957 air routes of the world. The maps are followed by a two-page table listing for each country its total population, area, population density, and the percentage of area devoted to each of four categories of land use The book contains a 12-page gazetteer of Canada and a 15-page gazetteer of the world. The end paper is a special map of the Middle East with a brief chronology of events on each country.

A very pleasing use is made of shading which overprints the hypsometric layer colors to produce a relief model effect. The absence of margins allows greater space for the maps which all have very readable type. The atlas employs several other techniques worthy of special note. Each climatic map contains climatic diagrams of numerous stations, showing the temperature and rainfall for each month and the total rainfall. A usually overlooked phenomena, sea ice, is depicted on several maps by symbols for unnavigable polar ice, and the maximum and minimum extent of pack ice. In addition, for Canada there are shown the areal extent and duration of freshwater freezing. The communication maps contain flow lines that show by weighting the volume of seaborne trade. A particularly interesting map is included of the topography of the Atlantic Ocean bottom, also indicating currents and listing distances between major points. Considerable use is made of insets both for usual and unusual features, such as the distribution of Tsetse fly in Africa, and the new Caribbean Federation. A tremendous amount of useful, easily read, information is fitted into this compact and attractive atlas.

The Prentice-Hall World Atlas. Joseph E. Williams, ed. Prentice-Hall, Inc. N.J. 1958. 9 x 12½ inches. 122 pp. $9.00.

Although American geographers had much to do with the information in this atlas, the maps themselves were prepared in final form in the

Geographisches Institut und Verlag in Vienna, under the direction of Hugo Eckelt. This European touch is quite evident in the appearance of the maps, which by the use of shaded relief and halftone form lines accentuate landforms, real and unreal, and their trends.

The first 23 pages contain maps of the world. About half of these pages are maps of the physical aspects, such as climate, soils, and vegetation. The other pages are devoted to dot maps of the world areal but not quantitative distribution of various raw materials. For each commodity there is a pie diagram showing the percentage of the world total for the major producers.

Then follows the treatment of the continents and their subdivisions, with the United States receiving particular attention, some 20 pages.

The 26-page index contains about 20,000 entries, unannotated. Use is made of the end papers: in front are up to date maps of the Antarctic showing stations of the I.G.Y., the Arctic, and the Pacific Basin; in the back are much condensed but interesting maps of world roads and railroads.

Glacial Map of Canada. Geological Association of Canada. Ontario. 1958. Scale 1:3,801,600. 50 x 62 inches. $2.00.

The map, compiled and drawn at the Geophysics Laboratory of the University of Toronto, brings together information from a wide variety of reliable sources, such as the Canadian Defence Research Board, National Research Council, Department of Mines and Technical Surveys, and Geological Survey of Canada.

The base map was prepared by the Map Compilation and Reproduction Division of the Department of Mines and Technical Surveys. The information depicted represents an enormous amount of research and shows by a combination of symbols and color, the existing glaciers, glacial outwash, iceflow features, moraines, unglaciated areas, the maximum extent of areas of marine submergence and of extinct Pleistocene lakes, limits of permafrost, ice divides, glaciated surfaces, marine sediments, and directions of ice movements. An inset, showing the rock outcrop and drift cover of the Canadian Shield, was compiled by Jessie Falconer from aerial photos.

Copies of the map may be purchased from the Geological Association of Canada, Room 703, 111 St. Clair Avenue West, Toronto 7, Ontario.

---Catherine I. Bahn

Atlases in the Library of Congress, Vol. V. Compiled by Clara Egli LeGear. U. S. Government Printing Office, Washington, D.C. 1958. xlvii and 666 pp. $5.25.

This volume is a continuation of the series by Philip Lee Phillips and contains bibliographic entries and notes for 2,326 world atlases acquired by the Library of Congress between 1920 and 1955. Full tables of contents have been included, with a few exceptions, for all atlases published prior to 1920, and for maps of the Americas prior to 1870. Notes include as far as possible the names of mapmakers, engravers and lithog-

raphers, general information about the maps, bibliographic references, and some reviews. The index records areas, subjects, map authors, engravers, lithographers, publishers, and atlas titles. A limited stock of volumes 3 and 4 is still available from the Superintendent of Documents at $1.25 each, but volumes 1 and 2 are completely out of stock. Positive microfilm of the first two volumes, totaling 1,659 pages, may be purchased from the Photoduplication Service, Library of Congress, Washington 25, D. C. for $10 including postage.

---A. C. Gerlach

Atlas of 500 mb Wind Characteristics for the Northern Hemisphere. James F. Lahey, Reid A. Bryson, Eberhard W. Wahl, Lyle H. Horn, and Vilas D. Henderson. University of Wisconsin Press. Madison. 1958. 97 pp.

The atlas is based on upper air data covering the period October 1945 to January 1953 for grid points between 10° and 90° north latitude. The results of the computations and analyses of these data are plotted on polar stereographic projections. There are seven charts for each month: (1) resultant geostrophic winds, showing speed and direction, (2) mean west-east component of the geostrophic wind, (3) standard deviation of the daily value of the west-east component, (4) mean south-north component, (5) standard deviation of the daily value of the south-north component, (6) mean height of the 500 mb surface, in feet, and (7) standard deviation of the daily value of the 500 mb height. Wind speeds for the first five charts are shown in meters per second. Approximately 220 observations were used for each mean and standard deviation computation.

The Geophysics Research Directorate of the Air Force Cambridge Research Center sponsored this research.

Atlas of Oregon Agriculture. Richard M. Highsmith, Jr. Agricultural Experiment Station, Oregon State College. Corvallis. 1958. 42 pp. $1.00 (sales handled only by O.S.C. Coop Bookstore, Box 491, Corvallis, Ore.).

A remarkable amount of information, mainly from the 1954 Census of Agriculture, has been organized, condensed, and clearly presented in the 71 maps and graphs and short accompanying texts in this handy reference atlas. The book opens, logically, with a general depiction of Oregon's topography, climate and soils, which the author says "set the broad limits to land use possibilities." These possibilities are plotted using a scale of 8 classes of land capability. Maps of forest and range cover, and surface water resources complete the background information.

Over one third of Oregon is farmland, and a map shows the per cent of each county in farms. Details of this 5¼ million acres of cropland are shown on a series of dot maps plotting the distribution of cropland, irrigated land, farmland used for pasture only (50% of the farmland is so used), woodland on farms (22%), and individual farms. Maps, tables and graphs provide information on farm type, tenure, size and number, including a listing by counties of classes of commercial farms. Land and

building value per farm and per acre is mapped on a county basis.

The next 15 pages are devoted to dot maps of individual enterprises which show the distribution of cows, sheep, swine, poultry, and over 20 crops. Maps of rural and urban population, highways, railroads, retail and wholesale trade centers, and food processing plants, complete this graphic and informative description of Oregon's agricultural landscape.

Concise Oxford Atlas. D. P. Bickmore and T. K. Derry, editors. 2nd ed. Oxford University Press. 1958. 8 x 10½ inches. xl and 248 pp. $7.00.

This is a thorough revision of the first edition, 1952, bringing up to date and revising the earlier maps and gazetteers, adding new maps and data, mainly historical, and impressively shifting from the use of "political" colors to layer colors and shading depicting relief. The atlas is in two parts, the British Isles, and the rest of the world, with both parts reflecting a British center of interest. The first part, with its own gazetteer, is a thorough treatment of the British Isles and contains maps of population distribution, history (from prehistory to the 19th century on 4 maps), roads, recreation, scenery (including such categories as "excellent quality"), rainfall, temperature, sunshine and fog, Greater London, and 6 sectional maps at 1:1 million scale. Records of 81 weather stations listing monthly mean rainfall, temperature and sunshine are included.

The rest of the world receives less detailed treatment. Each major region is introduced by political, population and historical maps. The scales of the sectional maps range from 2 to 6 million for Europe to 24 million for South America. Only one larger scale map (1:8 million) is included for South America. Maps of the Pacific, Atlantic, and Indian Oceans use layer tints to depict major bottom features, and show currents and drifts. The shaded relief map of Antarctica incompletely indicates the IGY stations and areas "seen by man." An interesting inclusion in an atlas is the map of the moon showing seas, continents and craters on an equal area projection with the North Pole at the top of the map, a selenographic innovation.

Then follows a series on the world as a whole. One map shows extent of political organizations, such as NATO, Arab League, Communist bloc, and Organization of American States. A map of population distribution includes inset tables listing cities of over 1 million population and statistics for 20 countries on total population, per cent engaged in manufacturing and in non-manufacturing, average yearly per capita income, and life expectancy. Sea and air communication flow maps indicate general, but not measured, volume of traffic. A climatic map is accompanied by data from 171 weather stations listing monthly rainfall and temperature. A brief table of population, area and landuse for countries of the world, and an extensive gazetteer complete this useful atlas.

All the maps are clearly printed, easily read, and contain abundant place names. Each sectional map has a helpful inset index map. The border of the inset is cleverly used as the linear scale, and to add a

truly meaningful touch for British students, the scale is translated into equivalent distances from London to such places as Windsor, Oxford, and Paris. This is illustrative of the careful planning, efficient use of space, and thoughtfulness evident throughout this high quality book.

America's Products and the Trucks that Carry Them. Automobile Manufacturers Association. Detroit. 1958. 21 x 36 inches. Free.

This color map will appeal to children in elementary and secondary school because it pictures the principal products of each state. The border shows a variety of trucks doing different jobs. Teachers and librarians may obtain single copies free from: Educational Services Department, Automobile Manufacturers Association, 320 New Center Building, Detroit 2, Michigan.

Atlas Scolaires Européens. I. B. F. Kormoss, Bibliographia Belgica, No. 23. Commission Belge de Bibliographic. 5, Rue de la Regence, Bruxelles. 1957.

At this time when increasing interest is being generated for various western European political, economic and social groupings, such as the "Common Market," it seems appropriate that the Cartographer of the College of Europe, Bruges, Belgium has made a critical comparison of school atlases published in several countries which may become members of a United States of Europe. Now that the United States has embarked upon a National Atlas project, it is particularly important to realize that the U. S. National Atlas lacks a counterpart in most of the forty-eight states. The opposite situation prevails in Europe where nearly every country, either officially or through a private publisher, already has some kind of "state" atlas.

By bringing together information regarding these European School Atlases, Dr. Kormoss renders the service of pointing out to American geographers, and to educators in general, the level of geographic attainment which pupils of European secondary schools reach before going on to university studies. The atlases described are from: Belgium; West Germany (2); East Germany; France (3); Great Britain (2); Italy (2); the Netherlands (2); Austria (2); Switzerland; Sweden; and the Soviet Union. A table summarizes such information as: publication dates, page size and format, distribution of maps, and finally an item which is all too often omitted from such reviews, namely, a listing of prices, in both the local currency and in U. S. dollars. The main body of this "essay of critical bibliography" is devoted to treating each atlas according to: distribution of maps, whether local, regional, or global; scales; color schemes; and a final critical paragraph; all of which is in French.

The average U. S. university or college library probably possesses several of these atlases. The value in "Atlas Scolaires Européens" lies in the information pertaining to the map coverage of the country in which the respective Atlases are published. In each case the local maps are numerous and of large scale since they are oriented toward the school children of each land. For anyone specializing in the geography of Europe,

they also give an insight to the status of geography in the respective countries.

Several National Atlases of European nations were viewed in the Geographical Review, October 1957. These are primarily the larger, more sophisticated works, several of which are being issued "piecemeal" as is the National Atlas of the United States. A review was made of Dr. Kormoss' first major work at the College of Europe, the "Orbis Terrarum Europae," in the January 1957 issue of the Geographical Review. As the College of Europe grows to serve the supranational organs being formed in Western Europe, we may look for further cartographic material to be published by that institution, such as the announced "Atlas Économique de L'Europe."

---Franklin R. Stern

Review of Geodetic and Mapping Possibilities. Interessengemeinschaft fur Geodasie und Kartographie E.V. (Cooperative Society for Geodesy and Cartography). Frankfurt am Main. Germany. 212 pp. text, 200 pp. commercial inserts. (English edition available at 12 DM from the Society at Forsthausstrasse 151, Frankfurt a/M).

This Review is intended primarily for those responsible for the procurement of mapping equipment and supplies, and is divided into seven sections: Geodetic Surveying, Photogrammetry, Civil Works Surveying, Cartographic Work, Reproduction and Printing of Maps, Geophysics, and Miscellaneous. Each section contains a number of short articles on various phases of the main topic, followed by a table listing the fields of activity of those companies engaged in that particular phase. The cartographic section contains twenty sections from maps produced by leading cartographic firms. An appendix lists modern German publications in the fields.

The portion of primary interest to academic geographers is the "Miscellaneous" chapter, which contains sections on the training of surveyors in the State Polytechnic Schools, mapping engineers at the Berlin and Munich State Colleges for Civil Engineering, and graduate surveying engineers at the University of Bonn, the Berlin-Charlottenburg Technical University, and seven "Technische Hochschulen." The curriculae are given, but are expressed in "terms," "lessons," or "percentage of course," making comparisons difficult. There are also brief write-ups on the Institute for applied Geodesy, the International Course (academic) for Geodetic Distance Measurement, Courses in Alpine Research, the "Photogrammetric Weeks" at Munich, the International Course in Map Printing and Reproduction, and professional training for foreign students and specialists.

Although its coverage is limited to the Federal Republic of Germany, this paper-back would be very useful to persons interested in instruments and material; the training sections would be of interest to teachers, although, regrettably, there appears to be little geography, as such, taught in these courses. The Review is, however, a complete compendium of available West German mapping resources.

---Robert E. LaMont

Landscapes of Alaska - Their Geologic Evolution. Howel Williams, ed. University of California Press. Berkeley and Los Angeles. 1958. xvi and 148 pp. illust. $5.00.

With the advent of Alaska becoming the 49th State, nation-wide interest is being generated in this hitherto largely unknown vast and scenic area. Landscapes in Alaska is filled with dramatic photographs professionally filmed to portray the new state's majestic beauty. Prepared carefully by outstanding geologists, for the National Park Service's Recreation Survey of Alaska, the text is written in language familiar to geographers and easily digestible by the lay reader.

This volume is edited by Howel Williams, Professor of Geology at the University of California, who called upon twelve members of the United States Geological Survey, several officers of the National Park Service and Bradford Washburn, Director, Boston Museum of Science, to assemble data and photographs and to draft the manuscript.

Generously interspersed with photographs of geological features such as Mt. McKinley, glaciers, moraines, fiords, and volcanoes, Landscapes in Alaska will furnish residents and visitors, a better understanding of Alaska's magnificent scenic resources.

The authors recognize 4 physiographic provinces, Pacific Mountain System, Interior and Western Alaska, Brooks Range, and the Arctic Slope and fourteen sub-provinces in Alaska. The evolution of each is expertly developed and interpreted in the light of its geographic utilization by Eskimos, Aleuts, Indians, prospectors, and homesteaders, together with all the people who have made Alaska a land of growing industries, great military bases and networks of airlines.

The volume contains 23 plates, 6 maps, 3 figures, a geologic time scale, an alphabetically arranged glossary, and an index of geographical names.

Landscapes in Alaska will stimulate wide interest in and appreciation for the scenic beauty of our new state.

---John L. Taylor

The New India: Progress Through Democracy. Planning Commission, Government of India. The MacMillan Company. New York. 1958. x and 412 pp. $2.50 (paper back); $5.00 (hard back).

After a short though sound review of India's major economic problems, The New India examines the main phases -- Agriculture and Rural Development, Industrial Development, The Social Services -- of the nation's Second Five Year Plan (1956-1961). Some twenty chapters explain the aims and methods in detail as well as giving a summary of accomplishments of the First Five Year Plan. "Highlights" of each section of the Plan, viz., "Medium and Large Scale Industry," are shown in convenient tabular form at the beginning of each chapter.

This book was prepared by a special study group of four staff members of the Planning Commission and two of the Ford Foundation in India. As an official government publication, the style is somewhat stilted, the viewpoint certainly biased. A few of the projects are out-of-date, or at

least unrealistic, in view of India's foreign exchange difficulties. Although scarcely valuable to the serious student of India, this book is an excellent brief examination of government sponsored plans for solving India's major economic problems.

---Robert C. Kingsbury

Education for Planning: City, State, and Regional. Harvey S. Perloff. Published for Resources for the Future, Inc., by the Johns Hopkins Press. Baltimore. 1957. x and 189 pp. $3.50.

Prepared by the former chairman of the Committee on the University of Chicago's Program of Education and Research in Planning, this book is a record of some of the philosophy of education which was reflected in that program, now terminated, as well as an evaluation by one closely connected with the program of its strengths and weaknesses. It consists of three chapters. The first is a discussion of an approach to the education of professional city planners, the second a similar treatment of education for regional planning and development, and the third is devoted specifically to the program experiment at the University of Chicago.

The book also contains some very interesting appendices, including a chronological listing of "Some landmarks in the history of city planning and of planning education in the United States." In another appendix, "Intellectual and professional contributions to, and influences on, city planning," the role of the social science research is stated to include "geographic and ecological studies of land as related to natural influences and to man and his 'works'; development of techniques of land-use analysis."

As a subjective estimate and record of an important but extremely controversial approach to planning education, this book makes a valuable contribution to the field.

---Harold M. Mayer

The North American Deserts. Edmund C. Jaeger. Stanford University Press. 1957. xii and 308 pp. illust. $5.95.

For desert devotees and students of arid regions this book will stir almost uncontrollable impulses to rush off to the beautifully described deserts of the United States and Mexico to enjoy again their ever-changing, ever-fascinating landscape. Those unacquainted with deserts will find this book a gentle, appreciative and painlessly informative introduction to these vast areas in North America, so typical of deserts everywhere. Whatever may be the experience of the reader, sophisticated scholar, beginning student, amateur scientist, or interested tourist, he will find much in this lucid, well organized account that will be enriching and rewarding.

After a brief resume of general desert characteristics and the ways in which plants, animals and man have made adaptations to the heat and drought, the author enlists the talents of Peveril Meigs to present the weather and climate aspects of the arid west. Detailed descriptions, reflecting the long experience and intimate knowledge possessed by Edmund Jaeger, are then given for each of the desert subareas: The Chihuahuan,

Painted, Mohavean, Great Basin and Sonoran, with the last being divided into Sonora Proper, Arizona Upland, Yuman, Colorado, Vizcaino-Magdalena and Gulf Coast deserts.

The last half of the book is devoted to descriptions and sketches of the desert's most common insects, reptiles, birds, mammals and plants, with the greatest emphasis here as in the earlier sections, on plants. The plant list is helpfully arranged according to the color of the flowers. These useful guides, which include both the common and scientific names of the desert flora and fauna, are supplemented by a brief bibliography.

Throughout the book abundant use is made of index maps and excellent quality photographs.

The Seizure of Political Power. Feliks Gross. Philosophical Library. New York. 1958. xxii and 398 pp. $6.00.

Professor Gross determines similarities not only in Russian revolutions but revolutions in general by utilizing the technique made famous by Nicholas Berdyaev (Origin of Russian Communism), i.e., that the success of the Bolshevik revolution of 1917 and the resultant ability of the Party to solidify its gains are largely explicable in terms of the Russian historical experience of the 19th century. Emphasis is placed on the continuity between the old radical intelligentsia and Lenin and the Bolsheviks with respect to organization, strategy and revolutionary outlook.

In using this theory of continuity between old and new, the initial appeal of Marxism to the first Russian Marxists of the 1880's is not satisfactorily explained. Professor Gross has correctly deliniated the failure of the intelligentsia to persuade the autocracy of the need for social reform, and following that, the intelligentsia's failure to educate the peasantry to political responsibility.

Professor Gross analyzes political upheavals from the Decembrist revolt in 1825 through the communist take-over in east Europe during the post-World War II period, subsequent internal political reactions (East Germany, Poland, Hungary, etc.), and ends with a concise chapter on the nature of political change in democratic societies.

In general, for students entering the Russian field, this book will provide partial background.

Water Resources. Law and Contemporary Problems. School of Law, Duke University. Vol. XXII, No. 3 (Summer 1957) 215 pp. $2.00.

As a companion volume to River Basin Development (announced in the January 1958 Prof. Geog.), this group of papers is primarily concerned with the legal, administrative and organization aspects of governing water resources. Ernest A. Engelbert outlines the legal powers, spheres of jurisdiction and relative positions and responsibilities of the federal government and states in water resources development. The TVA, as an example of federal control, is discussed by Roscoe C. Martin. The opposite, the locally developed Muskingum Watershed Conservancy District, is treated by Lyle E. Craine who concludes that it was a good thing the

MWCD lost its independence because total and comprehensive drainage basin development requires full contribution at all levels of government. The Hope-Aiken Act, its history, provisions, changes and functions are described by Robert J. Morgan in his assessment of the problems and prospects for small (less than 250,000 acres) watershed development. The role of private enterprise is pointed out by Roy E. Huffman who pleads for an adequate national water policy and a "partnership" policy that is practical and workable. He feels that maximum private and public effort combined are needed to meet the demands of a growing population and expanding economy. James W. Fesler reviews the problems besetting the federal government in its relations to water resources, critically appraises the various proposals for reorganization and consolidation, and elaborates the conflicts between areal and functional bases of organization and between Congress and the Executive Branch. The significant water resources issues and problems are identified by Irving K. Fox. The coincidence of disaster and action is pointed out by Henry C. Hart as he reviews the findings of the symposium and goes on to examine the role of the Corps of Engineers as a "crisis agency." He feels the failure to find answers lies in looking to reorganization and departmentalization as cures while the real need is an informed public.

This volume coupled with the earlier one provides a fine coverage of various aspects of water resources, a reference of value to geographers.

Influence of Highway Improvements on Urban Land: A Brief Summary. William L. Garrison & Marion E. Marts. Highway Economics Studies. Dept. of Geography & Dept. of Civil Engineering, University of Washington. May 1958. vi and 70 pp.

This booklet will be of great interest to those geographers concerned with transportation and land utilization. Its primary objective is to examine the impact of highway improvement and expansion programs upon the utilization of land in the United States. To accomplish this purpose, the authors have systematically grouped 37 case studies from all parts of the country into three major categories affecting (1) land values, (2) business, and (3) traffic. Concise textual analyses, properly supported by maps and graphs, make for a well balanced presentation of this research project. A reference list is included for those with further interest in the case studies assembled in this booklet.

---Robert E. Gensler